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COMMON CONGENITAL LESIONS OF THE URINARY TRACT

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It is not intended here to present a report on the infinite varieties of congenital anomalies of the urinary tract, but rather to outline a plan of management of two large groups of patients, namely, those with congenital obstructive lesions and those with exstrophy of the bladder, hypospadias or epispadias.

CONGENITAL OBSTRUCTIVE LESIONS

Congenital lesions producing obstruction to the outflow of urine may be found at any point in the urinary tract from the ureteropelvic junction to the urethral meatus. Since they are frequently multiple, it is of utmost importance for one to study all parts of the tract *thoroughly* before instituting a plan of therapy. Surgical relief of obstruction in the upper urinary tract may well be nullified by a comparatively innocent-looking lesion at a lower level. Most commonly, obstructing lesions will be found at or near the ureteropelvic or ureterovesical junction and at the vesical neck.

Congenital obstructions at the ureteropelvic junction are of three general types, although any combination of these may be found in a single patient. They are as follows: (1) *high* insertion of the ureter above the most dependent portion of the pelvis, (2) intrinsic narrowing of the ureteropelvic junction and (3) aberrant vessels, fibrous bands or both, compressing the ureter at or just below the *ureteropelvic* junction. Here again the possibility of multiple lesions demands careful evaluation of the entire urinary tract.

Obstructions at the ureteropelvic junction may occasionally reach clinical proportions in childhood. Most patients, however, will tolerate the lesion until young adulthood when pain, *recurrent pyelonephritis* or a mass in the flank will precipitate investigation. Adequate urologic examination should reveal the site of the lesion, whether it is unilateral or bilateral and important clues as to its inherent nature. If it is unilateral, estimation of the function of the involved kidney is necessary before a decision for or *against* a conservative *surgical* procedure can be made. As a rule, if the affected kidney possesses less than one fourth of its function, the other kidney will usually have undergone compensatory hypertrophy, and nephrectomy will be required. In borderline cases, ultimate evaluation should be deferred until the kidney is exposed at the operating table. Young persons in whom evaluation is equivocal should be given the advantage of a conservative operative trial. Secondary nephrectomy, if necessary, is preferable to primary removal of a potentially useful kidney. The various operative techniques by which plastic repair of the ureteropelvic junction is accomplished are well known. In selection of a technique to be employed it is extremely important to remember that no single operative procedure is applicable to all cases. It is often necessary to combine two or more methods to obtain a successful functional result. The obvious clinical importance of bilateral obstructions at the ureteropelvic junction cannot be overemphasized. Most patients who have come under our care have already suffered considerable loss of renal function, and the condition has usually been complicated by infection. In the treatment of such patients the side with the greater renal damage should be operated on first and the other side operated on without unusual delay, preferably within three months. The reason for this is that once the obstruction on one side is relieved, the function of the opposite kidney fails at a more rapid rate. If it is left untreated, it will soon become a functionless hydronephrotic or pyonephrotic sac.

Congenital obstructive lesions at the ureterovesical junction fall into two categories: those involving only the mucosa and those involving all the layers of the ureteral wall. In the first group, the pressure of urine retained behind the tiny ureteral orifice causes a ballooning of the mucosa into the bladder so that the classical intravesical cyst or ureterocele is produced. Typically, when viewed cystoscopically, the cystic masses appear and disappear in response to ureteral peristaltic pressure, except when the mucosa has been thickened and fixed by chronic infection, in which case the cysts are maintained in their distended state. Roughly, the amount of associated ure-

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teral dilatation is proportional to the degree of stenosis of the orifice. Occasionally, the cyst may be of such proportions as to produce acute retention by obstruction of the vesical outlet. In women it may be extruded through the urethra. As a rule these patients, particularly adults, require simple transurethral resection of the cyst. In children, however, because of the small caliber of their urethras and the large size of the ureterocele, suprapubic excision is frequently required.

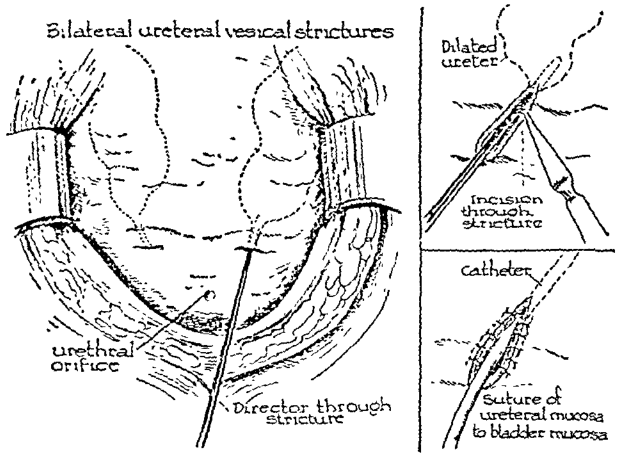
Bilateral ureteral vesical strictures
Dilated ureter
Incision through stricture
catheter
urethral orifice
Director through stricture
Suture of ureteral mucosa to bladder mucosa

Fig. 1.—Transvesical meatotomy for bilateral ureterovesical stricture.

The second group of obstructive lesions at the ureterovesical junction, those that involve the entire wall, have in our experience been encountered entirely in children. More commonly, they are bilateral and are associated with pronounced dilatation of the upper urinary tract. There are three methods by which these obstructions may be relieved. The first is by cystoscopic ureteral dilatation, which, in our hands, has been unsatisfactory. The child's urethra frequently will not accommodate instruments of sufficient caliber to make any real impression on the obstruction; general anesthesia is necessary, and dilations must be carried out too frequently to be practical. In the second method, one should free the bladder posteriorly, expose the ureters at their entrance into the wall of the bladder, sever them at this point and reimplant them into the bladder. There are three inherent disadvantages in this procedure: (1) the ureters are dilated and do not lend themselves well to reimplantation; (2) there is a real danger of compromising the blood supply of the severed ureter and (3) the orifices so produced are functionally no better than those produced by simpler methods. Ureteral meatotomy, the third method, may be performed transurethrally if the urethra will accommodate an operating type of child's cystoscope. If there is any question as to the feasibility of this procedure, the operation should be performed suprapubically as depicted in figure 1. The stenosed orifice is incised through the entire area of stricture and the ureteral mucosa is sutured to the vesical mucosa. Ureteral catheters are left indwelling for five to seven days. This method has proved successful in our hands.

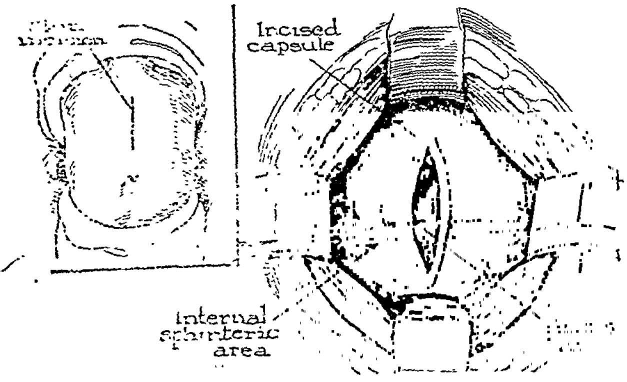

Fig. 2.—Modified retropubic approach to the urethra and vesical neck.

The simple fact that congenital obstructive lesions are often multiple cannot be overemphasized. Not infrequently obstruction at the vesical neck is associated with obtruction at the ureterovesical junction. Preoperative evaluation must include careful examination for residual urine as well as endoscopic examination of the vesical neck. Any obstructive tissue in this area must be removed. It is a common observation that a grossly dilated upper urinary tract in these patients rarely returns to normal after the obstruction has been removed. However, the urine can usually be rendered sterile and further loss of renal function prevented, provided all obstructive lesions have been removed.

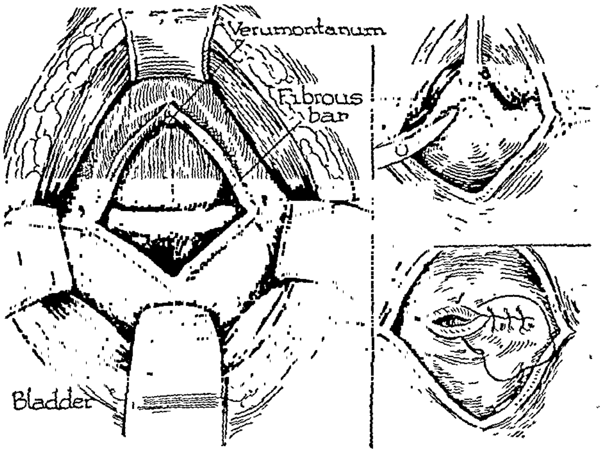

Fig. 3.—Prostatic urethra opened widely from just proximal to the verumontanum to the vesical trigone.

Congenital obstructions to the vesical outlet vary widely but generally fall into one of three large groups. The two commonest types are (1) elevation of the posterior internal sphincteric area simulating the median bar in adults and (2) contracture of the internal vesical orifice. These can occur in both males and females. The third and least common type is congenital prostatic urethral valves. Whatever the immediate lesion, the syndrome of uncomplicated obstruction of the vesical neck is fundamentally the same in each patient, namely, frequency, difficulty, straining and finally acute retention of urine or paradoxical incontinence. The syndrome and the physiopathology associated with it are essentially the same as those observed in men with prostatism. One of the unfortunate aspects of this condition is that frequent voidings or instances of overflow incontinence are all too often interpreted merely as poor training. This lack of understanding of the problem is all the more tragic, for apparently earlier and more rapidly progressive dilatation of the urinary tract is observed in children than in adults. The residual urine predisposes to infection, which, when present, is persistent and increases the rapidity of destruction of renal function. Early recognition of this syndrome and prompt relief of the obstruction offer a good prognosis, but failure to diagnose the condition only leads to irreversible renal damage.

We employ two methods for removal of obstructing tissue at the vesicle neck. The first, transurethral resection, although adequate in some instances, does not provide a satisfactory solution to the problem in all cases. Owing to the inherent technical difficulties in the performance of transurethral resection in children and the frequent necessity for repeated operation because of inadequate removal of tissue, we have been reluctant to use it on any but the simplest cases.

The second method, which we have employed in an increasing number of cases, is a modified retropubic approach (figs. 2 and 3). After exposure of the vesical neck in the classic fashion, a longitudinal incision is made through the vesical neck to expose the vesicourethral junction. The incision may be carried as high in the anterior vesical wall as is necessary for adequate exposure. Similarly, it may be carried down through the anterior wall of the urethra. Such an incision at once provides a wide area for inspection. In males the entire prostatic urethra is visualized from the verumontanum to the trigone. In those patients in whom obstruction is due to a bar of tissue at the posterior vesical lip the offending tissue is removed by simple excision. Enough tissue is cut away to provide a wide outlet that is soft and pliable. Similar excision of tissue is carried out if the lesion is simple contracture of the vesical neck. In each instance the cut margins of the mucosa are approximated with a few hemostatic sutures of fine atraumatic chromic catgut. Prostatic valves, which are usually simple mucosal folds, may be removed by electrocoagulation. If the upper urinary tract is not decompensated, the incision may be sutured primarily with simple sutures of fine atraumatic catgut over a small indwelling urethral catheter. If decompensation of the upper tract has already occurred, suprapubic drainage is employed over a period of months in order to permit maximum return of function.

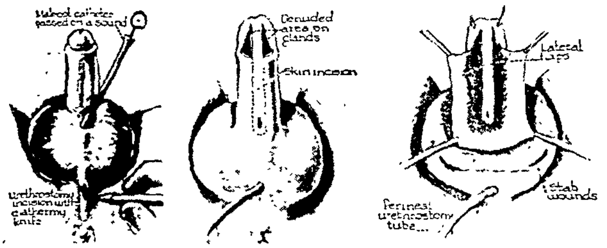
Naked catheter passed on a sound
urethrostomy incision with diathermy knife
Denuded area on glands
Skin incision
Lateral flaps
Perineal urethrostomy tube
stab wounds

Fig. 4.—First three stages of Denis Browne technic for repair of hypospadias.

During the past two years we have operated on 12 patients by this method. There have been no instances of postoperative incontinence, nor have there been any other postoperative complications of any importance. Postoperative infections of the urinary tract have been dealt with according to established principles. The duration of postoperative hospitalization has been eight to 12 days. Results to date have been excellent in all patients so treated.

EXSTROPHY OF THE BLADDER

Exstrophy of the bladder is an obvious lesion. The anterior wall of the bladder and overlying abdominal wall are absent; this allows the trigone and whatever remains of the posterior wall of the bladder to bulge forward and rest on the surface just above the level of the symphysis.

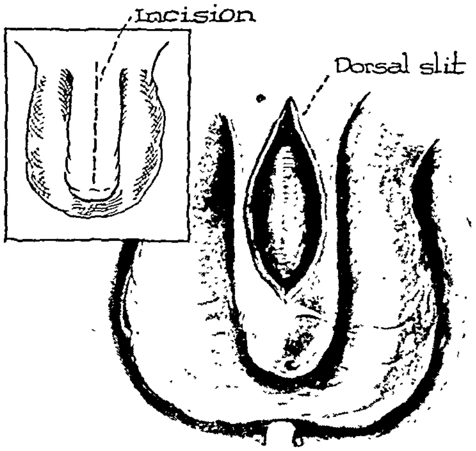

Fig. 5.—Fourth stage of Denis Browne technic.

The lower ends of the rectus muscles with their sheaths are widely separated; this leaves only the peritoneum and a thin layer of intervening fascia between the bladder and the peritoneal cavity.

Treatment of exstrophy of the bladder involves (1) transplantation of the ureters into the rectosigmoid, (2) removal of the bladder and repair of the associated ventral hernia and (3) plastic repair of the associated epispadias in males. In females, if the vagina is rudimentary, the third step is creation of an artificial vagina.

The method by which the ureterosigmoid anastomosis is carried out is a matter of individual choice. Our own preference is a minor modification of the Coffey I technique, which, in our hands, has proved simple and as efficient as more complicated techniques. Whether the ureters are transplanted at one operation or at separate operations is again a matter of individual choice. With present day antibiotics and chemotherapeutic agents there is less reason to fear the serious septic complications that made the two stage operation a necessity a few years ago. Diversion of the urinary stream may be accomplished in patients of all ages even in infants. A

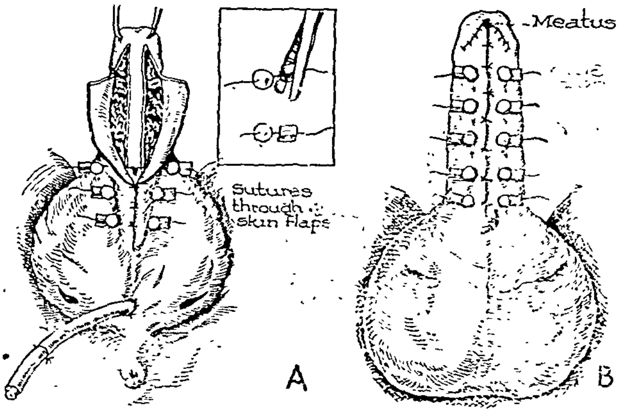

Fig. 6.—Final steps in Denis Browne technic.

months old. As a rule, the earlier treatment is begun, the better; for stenosis of the ureteral orifices develops in a surprising number of these patients. The ureters in such cases undergo early dilatation and lend themselves less favorably to ureterointestinal anastomosis. A few patients seen later in life will show greatly dilated and tortuous ureters. This group will require ureterocutaneous anastomosis.

Excision of the bladder and repair of the ventral hernia should be deferred until the patient has completely recovered from the operation for diversion of the urinary stream. The normal transitional epithelium of the bladder has been converted into a mucous-secreting epithelium in all exstrophic bladders. This epithelium must be removed entirely if success is to be attained in this phase. By removal of the bladder and repair of the hernia, the original defect is converted into another classic lesion, epispadias, and the patient has been prepared for the third and final operation. In females the urethra is of no importance at this stage. However, in many of the males at the time of puberty the ejaculatory ducts will be seen to open onto the surface at the penoabdominal angle with the resultant discharge of semen onto the surface. Plastic reconstruction of the penis and urethra should then be carried out to provide a coital organ. A wide variety of techniques has been employed to accomplish this third phase. We have recently employed with success a simple technique first introduced by Denis Browne (figs. 4, 5 and 6).[1]

HYPOSPADIAS

Hypospadias is a congenital defect in the urethra in which a variable portion of the urethra is absent, the ectopic meatus being situated proximal to the normally placed orifice. There is usually a ventral deformity of the penis produced by a band of fibrous tissue occupying the position of the absent corpus spongiosum. This condition may be divided into three anatomic groups: (1) glandular in which the orifice is located near the frenum, (2) penile in which the orifice is located in the shaft of the penis anywhere between the frenum and the penoscrotal angle and (3) scrotoperineal.

Glandular hypospadias is of little clinical importance unless the orifice becomes stenosed to the point of interfering with micturition, or unless the associated chordee is severe. In the first type, simple meatal dilatation or meatotomy frequently is all that is required. In the penile type the chordee is corrected, and the orifice is displaced proximally on the shaft, a penile hypospadias being thereby created.

In patients with penile and scrotoperineal hypospadias, treatment is surgical, consisting of two phases. The first, relief of the chordee, is accomplished by a transverse incision in the ventral surface of the penis and removal of all restricting bands of tissue. The incision is then closed longitudinally. Attention to detail in this simple procedure cannot be overemphasized. Inadequate performance of this step will seriously jeopardize the outcome of the entire operation.

The second phase is construction of the new urethra. Many techniques have been introduced through the years in an effort to produce as simply as possible a normally functioning urethra. In search of an ideal solution to this problem we have found that the principle embodied in the Denis Browne technique (figs. 4, 5 and 6) seems to lend itself to a simple adaptable method that provides an excellent functioning result. This procedure possesses several advantages over more complicated techniques. After the straightening operation—common to all techniques—has been performed, it is a one stage procedure. It is easily performed and may be completed before the child reaches school age. The average duration of hospitalization is 10 to 14 days, a factor of tremendous economic importance.

The technique of the Denis Browne operation employs a novel method for creating a fully epithelized, soft, pliable urethra. Parallel longitudinal incisions about 0.5 cm. on either side of the median raphe of the penis are carried from the glans to about 0.5 cm. proximal to the urethral meatus and joined in an arcuate fashion. With these incisions as starting points, full thickness skin flaps are produced by lateral dissection until they may be brought together in the midline and sutured without tension. This is accomplished by placement of interrupted silkworm gut sutures as shown in figure 6 A. The skin edges are then sutured with fine chromic catgut. The central island of epithelium, undisturbed, is thus covered completely with a full thickness of penile skin. The distal extremities of the lateral flaps are sutured to previously scarified areas on the ventral surface of the glans, while the proximal extremities of the flaps are brought together and closed to incorporate the hypospadiac meatus in the newly created channel. No catheters or foreign bodies of any kind are left indwelling in the new channel, the urinary stream having been previously diverted by means of perineal urethrostomy. A dorsal longitudinal incision is made over the entire length of the penis in order to reduce all possible tension on the ventral suture line. This incision is allowed to heal secondarily. Only the simplest of gauze dressings is applied for the first few days.

EPISPADIAS

This rare congenital anomaly is seen oftener in males. It is included here because the technique for correction of hypospadias described in the preceding paragraph is also adaptable to correction of the epispadiac deformity. The lesion may be balanotic, penile or "complete." The balanotic type may be mild and require only the simplest methods, as does its hypospadiac counterpart. Similarly, the penile type lends itself to correction by the method already described. However, in the third or "complete" type in which the sphincter is incompetent, the primary requisite is reestablishment of the competency of the sphincteric mechanism. In such cases one may attempt to reestablish the sphincteric mechanism and construct the anterior urethra simultaneously. Failing to secure a competent sphincter, one has no choice save diversion of the urinary stream, preferably to the sigmoid.

SUMMARY

Congenital obstructive lesions of the urinary tract are usually encountered at or near the ureteropelvic or ureterovesical junction and at the vesical neck. Because they are frequently multiple, thorough evaluation of the urinary tract is imperative before institution of therapy.

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[1] Burns, E.: The Denis Browne Operation for Hypospadias, J. Urol. 64: 382 (Aug.) 1950.

No single operative procedure is applicable to all cases of obstruction at the ureteropelvic junction. One may find it necessary to combine two or more methods in order to obtain a good functional result. If the obstruction is bilateral, the side with the greater renal damage should be operated on first and the other side within three months, if possible.

For obstruction at the ureterovesical junction involving only the mucosa, transurethral resection of the resulting intravesical cyst is usually sufficient, although in children suprapubic excision is frequently required. For obstructions involving the entire wall, which, in our experience, have been encountered only in children, ureteral meatotomy has proved successful in our hands.

Obstructions at the vesical neck must be relieved promptly before irreversible damage takes place. We prefer the modified retropubic approach for removal of these obstructions, although the transurethral approach may be employed. Exstrophy of the bladder is an obvious lesion which is treated by transplantation of the ureters into the rectosigmoid, removal of the bladder and correction of the associated hernia, and plastic repair of the penis.

Of the three types of hypospadias, glandular hypospadias, when the orifice becomes stenosed, requires simple meatal dilatation or meatotomy unless severe chordee is present, in which case it is necessary to convert it to a penile hypospadias, which is treated accordingly. For penile and scrotoperineal hypospadias, treatment consists of surgical correction of the chordee followed by construction of the new urethra. We prefer the Denis Browne technique for this purpose, because it is simple and easy to perform, is capable of completion in the preschool age and has a relatively short postoperative course. Epispadias can be corrected by this same technique.

ADVISABILITY OF SURGICAL REVERSAL OF SEX IN FEMALE PSEUDOHERMAPHRODITISM

Frank Hinman Jr., M.D., San Francisco

Most children with intersexual external genitalia can be converted into acceptable boys or into acceptable girls by appropriate surgical measures. If progressive endocrinologic abnormality is absent, such surgical change will be made to agree with the gonadal sex, unless of course it would have to be made after the attitudes and inclinations of the contrary sex had been established. These generally accepted opinions are the basis for advocacy of early operative exploration of pseudohermaphrodites, so that surgical and psychologic treatment in conformity with the true sex of the gonads can be started before the contrary psychologic pattern is set.[1]

I have no quarrel with the use of gonadal sex as the basis for treatment of male pseudohermaphrodites, although the problem of the genetic female with adenoma tubulare masquerading as a testis has yet to be solved. But the female pseudohermaphrodite, in a high proportion of cases, is the result of progressive androgenic overactivity of the adrenal gland during and after fetal life. This is the significant differentiating fact. This influence, in contrast to the genetic or developmental or maternal influences in the case of other forms of pseudohermaphroditism (table), will continue to act after the period of fetal development. Progressive masculinization after birth can, therefore, be expected in these patients. Of course, a female pseudohermaphrodite can be surgically and psychologically treated in infancy or childhood so that she will react as a female. But she will have the secondary sex characteristics of a boy. She will have a deep voice, a somewhat masculine physique, a beard and hairy body and a receding hair line. Because of these progressive changes, which at present are irreversible by surgical or hormonal means, she will be accepted neither as a male nor as a female.

For this reason of progression of masculinization, the stand that all pseudohermaphrodites be treated according to their gonadal sex must be questioned. The purpose of this paper is to prevent needless phallic sacrifice. The decision must be made from consideration of five aspects: surgical, endocrinologic, psychologic, moral and legal, each of which will be discussed in the light of past experience and present knowledge.

CLINICAL MATERIAL

I have two sources for data bearing on the problem of sex reversal in female pseudohermaphroditism due to adrenal hyperplasia: the experience of previous students and my own experience. This material has been assayed for its surgical, endocrinologic, psychologic, moral and legal values.

The records of the past concerning 149 patients reported on in the literature will be reviewed in detail in a separate communication.

Of interest is the finding that, among 53 patients reported on after they were 15 years of age, 16 were raised as males (four being changed to females just after puberty) and 37 were raised as females (two being changed from males). Five of those raised as boys later married women. There were two who committed suicide because they were prevented from marrying women, as their birth certificates stated they were female. A third of those raised as females were subjected to clitoridectomy.

I have personally observed five children. Two are being surgically altered to live as boys, and three have been operated on by others to become more anatomically feminine.

REPORT OF CASES

CASE 1.—W. K. is now 3½ years old. One sibling with similar genitalia and adrenal insufficiency, died at the age of 4 months. A second sibling, aged 15 months, is a normal girl. The present child was born with a vagina, large clitoris and labia resembling a scrotum. It was felt to be a boy and was so christened. Five days after birth he was discharged from the

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[1] Melicow, M. M., and Cahill, G. F.: The Role of the Adrenal Cortex in Somatosexual Disturbances in Infants and Children: 9 Clinicopathologic Analyses, J. Clin. Endocrinol. 10: 24-53 (Jan.) 1950. Hooks, C. A.: Clinical Aspects of Intersexuality, J. Urol. 62: 528-534 (Oct.) 1949.

United States Naval Hospital, Oakland, Calif., and was returned 15 days later because of persistent vomiting. He was treated with salt and adrenal cortex extract, and his difficulty was cleared.

At the age of 6 weeks he was admitted to the University of California Hospital, at which time he was noted to have a large clitoris and atresia of the vaginal orifice, with the urethra entering the vagina, which was very large (fig. 1). There was a flat cervix with a patent orifice. The urethra was normal except for its point of entry, and there were folds about the meatus. No verumontanum, ejaculatory ducts or prostate could be found. The bladder was slightly trabeculated. No gonads or adrenal glands were palpated. On rectal examination a prostate could not be felt. Vaginograms were made (fig. 2 *A*). The impression was that this was a female pseudohermaphrodite with adrenal hyperplasia. The bone age was normal, and the 17-ketosteroid excretion was 4.1 mg. in 24 hours (ketonic).

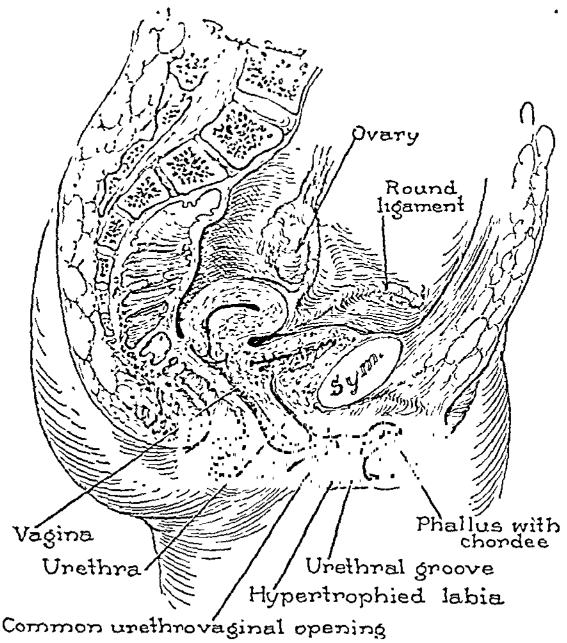

Fig. 1.—Drawing of relation of internal to external genitalia in case 1, typical of female pseudohermaphroditism due to congenital adrenal hyperplasia.

Treatment with an extract of adrenal cortex (eschatin®) alone, salt alone or desoxycorticosterone acetate alone caused persistence of the vomiting. The administration of a combination of desoxycorticosterone acetate, given sublingually, salt and sodium bicarbonate, however, was effective in controlling the adrenal insufficiency.

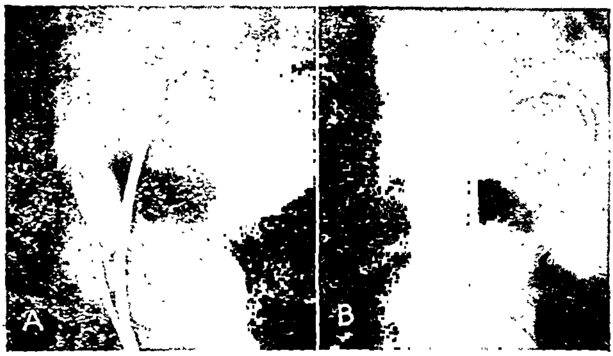

Fig. 2.—Vaginogram with air cystogram, lateral view. *A*, case 1. *B*, case 2.

At the age of 6 months a pellet of desoxycorticosterone acetate (percorten®) was implanted, and at that time the bone age measured 1 year.

The child was readmitted at the age of 1½ years for study with pituitary adrenocorticotropic hormone administration. Treatment with this compound failed to cause the normal eosinophil drop, indicating decreased 11-oxysteroids. The 17-ketosteroid excretion was 4.8 mg. per 24 hours. It was noticed that there were increased erections and masturbation. The parents were advised at this time to raise the child as a boy. A year later psychologic evaluation showed a mental age of 2 years 8 months, an intelligence quotient of 107 and a normal social quotient. His bone age was then 7 years.

The child was readmitted at the age of 3 years (fig. 3 *A*), and a first stage repair of the hypospadias, swinging the prepuce ventrad, was performed with the child under general anesthesia. During the procedure there was carpal spasm, followed by twitching and partial convulsions. A hyperventilation syndrome was considered the most likely cause, and the patient was treated accordingly. However, immediately after operation there was a severe Addisonian crisis, which was treated intensively with salt and adrenal cortex extract. After these difficulties, it was suggested that the second stage operation be performed when the child reached an age at which spinal or caudal anesthesia could be used. The bone age as measured recently (at the chronologic age of 3½ years) was 12 years. Photographs taken postoperatively (figs. 3 *B* and 4 *A*) show a very well developed phallus and masculine physique.

Tentative Classification of Intersexuality

Gonad	Characteristics	Possible* Etiologic Mechanism
Male		
A	Feminine habitus and genitalia except testes and small penis; usually raised as girls	Sex reversal from genetic female (adenoma tubulare)
B	Intersexual genitalia with other anomalies without feminization	Developmental arrest
C	Varying degrees of hypospadias	Excess or abnormal maternal (? adrenal) hormones
Female		
A	Intersexual genitalia without progressive masculinization	Genic disturbance
B	Intersexual genitalia with other anomalies without progressive masculinization	Developmental arrest
C	Intersexual genitalia with progressive masculinization	Excess androgenic function of fetal adrenal gland
Both Male and Female		
A	Intersexual internal and external genitalia without progression	Developmental arrest or genic disturbance of gonad

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* The respective roles of mutation, developmental arrest and maternal hormones cannot be discussed here. However, such factors may not be mutually exclusive.

Summary.—A 3½ year old female pseudohermaphrodite had a sibling with a similar deformity. The patient's masculinization was progressive, so that at the age of 3½ years he had profuse genital hair, a large phallus, advanced bone age (12 years) and slightly elevated 17-ketosteroids. He had, in addition, moderate adrenal cortex insufficiency controlled by subcutaneous implantation of pellets of desoxycorticosterone acetate. The hypospadias was corrected surgically, with the intention of continuing to raise the child as a boy.

Case 2.—A. B. is also now 3½ years old. An older brother, genitalia not described, died at the age of 3 months of dehydration and vomiting ascribed to "pylorospasm." An older sister is normal. At birth it was noticed that the labia were swollen and that the patient had a very large clitoris, which grew rapidly after birth. The child was admitted to the University of California Hospital at the age of 3 weeks with adrenal cortex insufficiency. Treatment was with saline solution, desoxycorticosterone acetate and an extract of adrenal cortex. Panendoscopy showed that the urethra and vagina opened into a short common passage exactly similar to that in case 1. Vaginograms with air cystogram showed the relationship between the vagina and the bladder (fig. 2 *B*). 17-Ketosteroid excretion was 15.9 mg. per 24 hours (ketonic), 8 per cent of which was dehydroandrosterone. The patient was discharged with the diagnosis of adrenogenital syndrome in a female infant. During the first year of life, in Oklahoma, peritoneoscopy was done, which was not diagnostic.

Readmission occurred at the age of 2 years, at which time pellets of desoxycorticosterone acetate were implanted to combat the chronic adrenal insufficiency, oral treatment for which was begun in Oklahoma. Exploratory laparotomy (Dr. H. F. Traut) revealed bilateral cystic ovaries, normal uterus and tubes and questionably normal adrenal glands. Sections were read as showing normal infant ovarian tissue. The bone age at this time was 5 to 5½ years. The crines were well developed, and the general body form already appeared somewhat masculine (fig. 5 *A*). The child was discharged to be raised as a boy, named Allen rather than Anita.

Dr. Lawson Wilkins, in a letter at this time (Jan. 31, 1949) suggested, on the one hand, raising the child as a girl if she were older and had already been raised that way, but that in this case raising her as a boy would present fewer problems in later life. He suggested that the ovaries and uterus might later be removed. Consequently, the birth certificate was changed by affidavit without difficulty.

A first stage hypospadias repair was done at the age of 2¾ years. Considerable oozing occurred during the operation so that transfusion was necessary, but no signs of adrenal insufficiency were encountered. The child was readmitted at the age of 3¼ years for control of the adrenal insufficiency. His parents noted that he was making a much better adjustment as a boy than he had as a girl. His bone age was 12 years at this time, and the 17-ketosteroid excretion was 25.9 mg. per 24 hours. At present he is maintained on 2 to 4 drops of desoxycorticosterone in oil (cortate®) a day and has a 75 mg. pellet of desoxycorticosterone acetate implanted subcutaneously. Photographs (figs. 4 *B* and 5 *B*) show his present genital and bodily status.

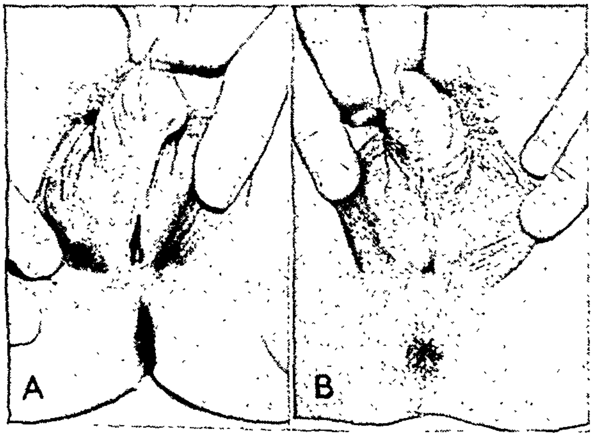

Fig. 3 (case 1).—External genitalia: *A*, preoperative, 3 years of age. *B*, postoperative, 3½ years of age.

Summary.—A female pseudohermaphrodite, with a sibling who had adrenal insufficiency, and with progressive masculinization (increased 17-ketosteroid excretion, increased bone age, gross genital hair, large phallus and masculinized physique), was subjected to a first stage repair of hypospadias in order better to raise the child as a boy.

Case 3.—S. F. C. is now 18 years old. She was first admitted to the University of California Hospital at the age of 5½ years, with the history that at birth abnormal genitalia and at 3 years abnormally rapid growth had been noted. There had been no feeding problem, however. On examination she was observed to have moderate hirsutism, a common passageway for the urethral and vaginal openings and, on rectal examination, a uterus. Her bone age at that time was 10 years. Perirenal air insufflation showed possibly enlarged adrenal glands. At this time adrenal exploration was carried out through the bilateral lumbar approach of Young. The left gland was twice normal size, and two thirds of it was removed. The right gland appeared normal, but a small adenoma was resected from its surface. Exploratory laparotomy revealed normal uterus and tubes; therefore, a plastic operation was done to remove the clitoris and expose the vagina. The child was readmitted at the age of 8½ years, even more masculinized than before. She was having considerable difficulty adjusting socially, since her voice was deep and she had acne and masculine breasts. Air insufflation was again done, which showed a right adrenal shadow the same size as before, with some calcification. X-ray therapy was given to this adrenal gland (3,127 tissue r) with questionable improvement thereafter. 17-Ketosteroids at this time were 13.9 mg. per 24 hours (ketonic). The following year ethinyl estradiol, 0.05 mg. twice a day, was given. The 17-ketosteroids were then 23.7 mg. per 24 hours (ketonic). It is noted that the only clearcut improvement was a reduction in the severity of the acne. The child was admitted at the age of 9½ for removal of the remaining third of the left adrenal gland. There was no postoperative Addisonian difficulty. The 17-ketosteroid excretion postoperatively was 10.7 mg. per 24 hours (ketonic).

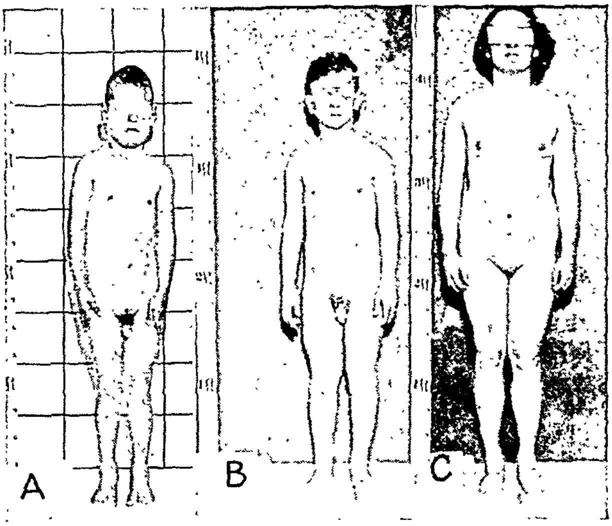

Fig. 4.—*A*, W. K. (case 1), 3½ years of age. *B*, A. B. (case 2), 3½ years of age. *C*, S. F. C. (case 3), 18 years of age.

Readmission occurred at the age of 13. In the interval she had become more female in her likes and dislikes, and it was felt that her body was more rounded. However, an increase in bodily hair and little change in the depth of her voice were noted. She was constantly harrassed by the other children, who commented on her hairiness. She was given diethylstilbestrol, 1 mg. three times a day, for a month without effect. 17-Ketosteroid excretion was now 68.7 mg. per 24 hours (ketonic). The bone age was 17 years. Further estrogen therapy caused some growth of the breasts, especially of the nipples, with pigmentation in this area, but the comment is made that there was increased hirsutism, which caused her mother great concern. At

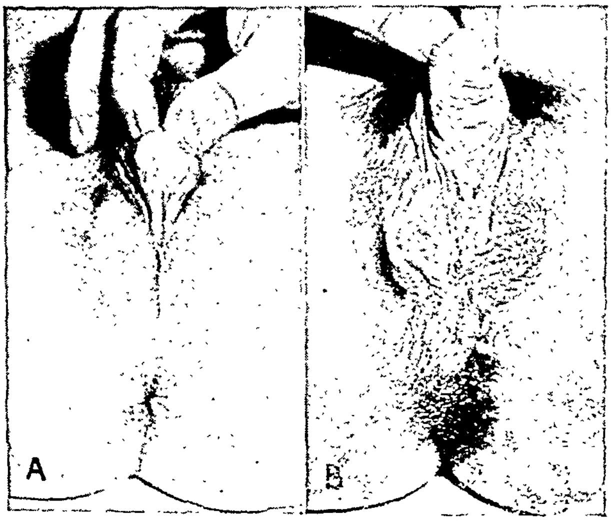

Fig. 5 (case 2)—External genitalia: *A*, preoperative, age 2 years. *B*, postoperative, age 3½ years.

the age of 18, premarin[5] (estrogenic substances [water soluble]) was given, 2.5 mg. twice a day in short courses, which resulted in menstrual spotting. A photograph is shown of her present state of development (fig. 4 *C*).

Summary.—An 18 year old female pseudohermaphrodite has had repeated partial adrenalectomy and hormone therapy, as well as clitoridectomy, without arrest of the progressive masculinization.

CASE 4.[2]—D. G. Y. is now 11 years of age. She was felt to be a girl at birth and has a sister two years younger, also with pseudohermaphroditism (case 5). D. G. Y. was admitted to the University of California Hospital at the age of 3½, having had pyelitis every three to four months for the previous year. At first, soon after birth, she had been a feeding problem and had vomited, but this had not recurred. At the age of 1½ years she had a circumcision of the clitoris because cysts had been noted beneath the prepuce. On admission a large clitoris was noted, with a single opening beneath it. The labia minora were adherent to the clitoris. Study showed a normal bladder and urethra, except that the urethra emptied into the anterior wall of the vagina, forming a urogenital sinus. The uterus and cervix were present and felt normal. The pyelitis was cleared, and the patient was discharged.

Two months later the patient was readmitted, and an exploratory laparotomy was performed (Dr. H. F. Traut). This revealed normal uterus, tubes and ovaries with follicles. The clitoris was amputated. At the age of 4 years the bone age was noted to be 8.3 years. 17-Ketosteroid excretion, measured at the age of 5 years, was 12 mg. per 24 hours (ketonic). The clitoris at this time had regrown.

Since that time the child has continued to be masculinized. Two more clitoral amputations have been necessary because of regrowth of the phallic stump. Recently the mother has had difficulty curbing her children's questions and anxiety concerning their unusual bodily state, and so far she has refused to have them photographed again.

CASE 5.—D. K. Y. is 8 years old at present. She, as was her sister (case 4), was called a female at birth. She was admitted to the University of California Hospital at 3 months of age. She had a clitoris 2.5 cm. long with scrotal folds for labia, a urethral groove and a single urogenital sinus. With the child under anesthesia, the ovaries were questionably palpable but the uterus was felt to be present. A common urogenital sinus and a large uterus were seen on hysterogram. She was readmitted one month later for exploratory laparotomy (Dr. H. F. Traut). As in her sister, normal ovaries with follicles were found and the clitoris was amputated. Later, revision of the vagina was suggested. At the age of 7 months there was pubic hair, and the bone age at 21 months was 27 months. The 17-ketosteroid excretion was 9.9 mg. (ketonic), which rose three months later to 16.1 mg. per 24 hours, and it was noted at this time (age 2 years) that the clitoris had regrown.

Like her sister, this patient physically has been progressively masculinized, although her interests and inclinations continue to match her environmental sex. She will continue to be brought up as a female.

Summary.—These two female pseudohermaphrodites have become progressively masculinized, but, since ovaries were found at laparotomy, they have been subjected to clitoridectomy and raised as girls. Their excessive physical masculinization at present (aged 11 and 8 years, respectively) may make one question the advantages gained by this course.

These five cases allow some comparison between patients with the congenital adrenogenital syndrome raised as boys and those raised as girls. Examination of the photographs shows that surgical treatment is more effective if it can go along with the patient's hormonal development (hypospadias repair in cases 1 and 2) rather than against it (clitoridectomy in cases 3, 4 and 5). It is, of course, impossible to estimate the ease of adjustment of the boys when they reach the critical age of puberty, but they have adjusted very readily so far. The girls, however, have actually been observed to adjust poorly with their classmates.

COMMENT

It seems obvious that one cannot decide at birth (1) that the deformity is due to adrenal overactivity or (2) that if it is it will be progressive. 17-Ketosteroid determinations do not become sufficiently elevated for months; bone age is normal, and secondary sex characteristics are still dormant—these being the criteria to be used in assessing progression. However, by the age of 2 years, these three signs will be manifest if progressive adrenogenital masculinization is to occur. If doubt exists (I felt the presumptive evidence so strong in one of the cases, case 2, that abdominal exploration was not performed), laparotomy is done to ascertain the presence of ovaries and hyperplastic adrenal glands. And it is at this age—before irreversible social and psychic changes have taken place—that the decision as to sex must be made, to be determined on surgical, endocrinologic, psychologic, moral and legal grounds.

Surgical Aspects.—The anatomic condition in these patients is illustrated in figure 1. The phallus, although even larger than that of a boy of similar age, is held down in ventral chordee. If the patient is to be made a boy, this chordee is released in an exactly similar manner to that employed for perineal hypospadias. There is only one previous report of use of this procedure for treatment of female pseudohermaphroditism [3]; I used such a technique in two of my patients (cases 1 and 2). The urogenital sinus, into which both vagina and urethra open, is utilized as a continuation of the urethra, allowing the use of a modified Wehrbein operation to bring this passage to the end of the phallus. The result should be indistinguishable from that after repair of extreme degrees of hypospadias. The presence of the vagina is not of consequence, as has been shown by Cecil [4] in cases of extreme hypospadias. Progressive masculinizing influences will maintain the phallus proportionate to the development of the body, so that at puberty the boy will have a serviceable penis.

On the other hand, if it is desired to reverse the hormonal trend and raise the child as a girl, clitoridectomy (perhaps repeated) is done, followed by a plastic operation to expose the vagina at its point of juncture with the urogenital sinus, as described by Young.[3]

In either case present surgical technique allows construction of functional external genitalia suitable for the chosen sex.

Endocrinologic Aspects.—With the congenital adrenogenital syndrome two facts must be faced: that there will usually be progressive masculinization, and that this trend cannot be reversed by surgical means.

Of course, female infants with milder degrees of pseudohermaphroditism in whom progression of masculinization does not occur will be passed over by parents and by authors, so that the literature and individual clinical experience will be weighted in favor of progression. But most patients observed after the age of 2 years who show evidence of excess androgen secretion at that time (advanced bone age, increasingly large phallus, hirsutism and high 17-ketosteroid excretion) will show progression throughout prepuberal life.

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[2] This case and case 5 are being reported in more detail by R. C. Bentinck and others.

[3] Young, H. H.: Genital Abnormalities, Hermaphroditism and Related Adrenal Diseases, Baltimore, Williams & Wilkins Company, 1937.

[4] Cecil, A. B.: Surgical Management of Vagina in Male Construction in Hermaphrodites, J. Urol. 62: 709-712, 1949.

Partial adrenal resection, while perhaps logical in theory, has been disappointing as a therapeutic measure in the 12 reported cases. Most of the patients were operated on after puberty, however. As Young [3] suggested, better results might be expected if excision were carried out before that time. Also, apparently inadequate amounts of tissue were removed, since on the one hand no cases of postoperative adrenal insufficiency have been reported among these 12 patients and, on the other, seldom significant, and never permanent, lowering of 17-ketosteroid excretion was obtained. The combination of subtotal excision with judiciously metered roentgen radiation after operation has yet to be fully exploited, although in case 3 it was not particularly effective. Interpretation of results of partial adrenalectomy must be tempered by the realization that patients who subject themselves to the procedure often have a very strong desire to become more feminine and will interpret minor postoperative improvement accordingly. The fact that a decrease of 17-ketosteroid excretion to levels even approaching normal has not occurred makes one hesitant about accepting reports of improvement, especially since the patients have usually been followed only a short time.

Hormonal therapy, especially the administration of estrogens, has been, of course, tried by many in an attempt to neutralize the excess androgens or to bring out feminine secondary sex characteristics. The usual effect is increased size of the breasts, especially of the nipples, which become protuberant and pigmented. One of the present patients (case 3) had a better mammary response than that illustrated in published works. In some cases there is decreased hirsutism or higher-pitched voice, but these changes are open to the same criticism as are those from partial adrenalectomy. Occasionally, hirsutism increases. The case of the child to whom diethylstilbestrol was given at the age of 5 well illustrates the dangers of early administration, for the epiphyses closed even more rapidly than is usual in these cases.

So far, attempts have been made to use estrogens directly or indirectly to antagonize the androgens. The expected feminization has not been forthcoming. A more rational experimental approach is the attempt to inhibit the adrenal cortex cells themselves, and so decrease the excess excretion of androgens. It has been suggested [5] that desoxycorticosterone might have this effect, and compound E, through its "S" hormone action of antagonism to the androgenic "N" hormones, has been proposed.[6] The use of cortisone in a 15 year old female pseudohermaphrodite has recently been reported by Wilkins.[7] He obtained notable reduction in 17-ketosteroid excretion during the 15 day period of administration, but the level rose again 11 days after cessation of treatment. A personal communication from Wilkins indicates that administration of 25 mg. of cortisone daily to these patients will cause feminization and menstruation. Whether this compound is safe enough to give over long periods has yet to be shown, but it may be most useful in those female pseudohermaphrodites who have been raised as or altered to be girls. Whether it should be administered to children with strong masculine social and psychologic trends might be questioned.[7a]

Psychologic Aspects.—Modern, in contrast to nineteenth century, psychiatric thought ascribes to the hormones the quantity of sexual drive but reserves for psychologic and environmental forces the direction of that drive.[8] It is the psyche that chooses the sex object,[9] although biologic factors play a minor role [10] by marshaling the psyche to follow the somatic characteristics. It was apparent from perusal of the reported cases that 30 per cent of the patients were raised as males without reported conflict; and, perhaps more important, only one was reversed once he had reached puberty. Thus, masculinity was usually not so burdensome that later reversal was desirable or necessary.

Similarly, Ellis,[8] in his attempt to find the basis for sexual choice in homosexual persons, studied the sex objects of true hermaphrodites and pseudohermaphrodites. Significantly, female pseudohermaphrodites with adrenal hyperplasia, if raised as males, were all heterosexual (chose women as sex objects), whereas if raised as females they occasionally were bisexual (chose both men and women for sex objects). This adds to the evidence for raising these persons as males.

In summary, present psychologic data indicate that a person seen early enough (before the age of 2 or 3 years) will fit best in the sex in which he has been arbitrarily raised.

Moral Aspects.—The attitude of society toward intersexuality has gone through two great phases. In ancient times, incest was the most universally repugnant moral crime and perversion was even condoned. In more modern times, on the other hand, perversion has become increasingly immoral and incest, while certainly not condoned, is looked on with slightly less abhorrence.

Ancient Jewish codes formulated religious rules for intersexes that were not particularly discriminatory. For example, in the Talmud (Tract Sabbath, Chapter 19, Mishna 3) the exception is made for the hermaphrodite that the Sabbath must not be desecrated by his precircumcisional or postcircumcisional bath. Also, the laws of uncleanliness did not apply to him.

In early Roman times hermaphrodites were regarded as omens of bad luck, but later there was a reversal of attitude and they were even allowed to marry.

Contemporary religious thought apparently is at two poles, with some representatives of the Roman Catholic Church on the side opposite those of most other churches. One of the Society of Jesus would formulate the Church's position with regard to the reversal of sex of the female pseudohermaphrodite as follows: 1. The actual or genetic sex is never changed. Notwithstanding

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5. Gordan, G. S.: Personal communication to the author.

6. Prince, C.: Personal communication to the author.

7. Wilkins, L.; Lewis, R. A.; Klein, R., and Rosenberg, E.: The Suppression of Androgen Secretion by Cortisone in a Case of Congenital Adrenal Hyperplasia: Preliminary Report, Bull. Johns Hopkins Hosp **86**: 249-252 (April) 1950.

7a. Since this manuscript was submitted, three patients (cases 3, 4 and 5) have received cortisone therapy without significant benefit. In case 3 *mild Cushing's syndrome* developed, necessitating withdrawal of the drug

8. Ellis, A.: The Sexual Psychology of Human Hermaphrodites, Psychosom. Med. **7**: 108-125 (March) 1945.

9. Perloff, W. H.: Role of the Hormones in Human Sexuality, Psychosom. Med. **11**: 133-139 (May-June) 1949.

10. Bayer, L. M.: Pseudo-Hermaphrodism: A Psychosomatic Case Study Psychosom. Med. **9**: 246-255 (July) 1947.

her education as a male, etc., she could never be "converted" into a male. 2. There is an essential difference in the education of a male and that of a female. 3. Male education tends directly to make a person sexually attracted to females. 4. It is morally objectionable to raise a female to be sexually attracted to females. Such an education results directly in homosexual tendencies. The conclusion is that it is morally objectionable to raise a female pseudohermaphrodite as a male.

Representatives of the Episcopal Church, on the other hand, feel that there does not appear to be any religious factor involved, other than the requirement that the person be given the fullest opportunity for spiritual integrity and development. The ethical problem is closely parallel, in that any decision in regard to an individual case should be indicated by the possibilities for the fullest and more normal opportunities for development.

The practical application of this knowledge is illustrated by two cases. De Crecchio[11] in 1865 described a female pseudohermaphrodite with hyperplastic adrenal glands, by occupation a valet, who was christened as a female but was raised as a boy. When refused the sacrament of marriage with the young girl of his choice, he is reported to have died some 20 years later of dissipation. Quinby[12] and Young[3] described a similar patient, who at the age of 31, having been forbidden to marry by a priest, committed suicide by taking mercury bichloride. One would be well advised to avoid sex reversal in members of certain religious groups.

Legal Aspects.—The law has tended in general to follow the moral and religious attitudes of the period.

In ancient times the hermaphrodite was left fairly free to choose his sex, although special legislation occasionally was formulated.

Old English law[13] demanded that the hermaphrodite decide the sex he will adopt, with the penalty of death imposed if he should change. This concept has been carried down to the present with little alteration. Prussian law of the eighteenth and nineteenth centuries removed the decision from the individual person and gave it to the parents. Medical opinion was advisory only, since the doctor was little better equipped to determine the sex than the layman. However, in modern times the informed physician, through the medium of the birth certificate, is required to determine the sex in which the person is to be reared. Since it is the doctor who signs that certificate, he is free to alter it if later he accumulates contrary evidence.

There is apparently nothing in legal precedent that makes the gonads the prime sex determinant, although usually such is the case. Lawyers are of the opinion, although they will not be bound by it, that, with the advance of medical science, sex should be based on more than the presence of male or female gonads. Physical factors, as well as hormonal and environmental influences, play an important role.

For his own protection, the physician should of course have written permission from both parents and be assured of their full understanding and consent. Also, he should have the birth certificate changed, which is done in most states by mere submission of forms.

Since inheritance and property laws no longer discriminate so sharply between male and female, the only real legal difficulty a sexually reversed pseudohermaphrodite will meet comes at the time of his marriage. To marry without informing his spouse of his sterility would be grounds for annulment. The necessity of informing her of his gonadal incongruity does not seem absolute, although the legality of withholding this information has not been tested.

In addition, if a pseudohermaphrodite breaks the law through sexual activity or perversion, it will be as a female acting aggressively as a male rather than as a male submitting in the role of a female. Broster[14] writes that in England a male may not masquerade as a female *but* a female may act as a male.

In summary, the law would allow sex determination by a summation of gonadal, hormonal and environmental factors. Once established as of one sex or the other, the person is no longer free to return to the opposite sex without appropriate legal action.

SUMMARY AND CONCLUSIONS

Female pseudohermaphroditism from adrenal hyperplasia is usually a progressive masculinizing disorder, as in the five cases presented.

At the age of approximately 2 years, four criteria will allow determination of the degree and direction of the progression: (*a*) advanced bone age, (*b*) increasing size of phallus, (*c*) hirsutism and (*d*) elevated 17-ketosteroid excretion.

If progression is evident, consideration must be given to the preferability of raising the child as either a masculinized female or a sterile male with ovaries. Even though it seems preferable to raise the child as a female, the surgeon is strongly urged to defer clitoridectomy until puberty to be certain that the factors favoring ultimate feminization will still be present. Five illustrative cases are presented.

Partial adrenalectomy and estrogen therapy have not been particularly useful in inhibiting masculinization or in effecting feminization. Cortisone is promising as an agent to suppress excessive androgen production and to allow feminization. It may be of use in children treated before masculine social and psychologic attitudes are established and could be especially useful in children already raised as females.

Female pseudohermaphrodites will usually fit psychically into the sex in which they are arbitrarily raised.

Except for the attitude of the Roman Catholic Church, there appears to be no moral objection to raising these persons in either sex.

If due provision is made for obtaining written permission from the parents and for changing the birth certificate, there appears to be no legal obstacle to the choice of either sex.

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[11] de Crecchio, L.: Ein Fall von Hermaphroditismus, Wien. med. Presse **30**: 763, 1865, cited by Bulloch, W., and Sequeira, J. H.: On Relation of Suprarenal Capsules to Sexual Organs, Tr. Path. Soc. London **56**: 189-293, 1905; Sopra un caso di apparenze virili in una donna, Morgagni **7**: 151-153, 1865, cited by Apert, E.: Bull. Soc. pédiat. Paris **12**: 313, 1910.

[12] Quinby, W. C.: A Case of Pseudo-Hermaphrodism, Bull. Johns Hopkins Hosp. **27**: 50-53 (Feb.) 1916.

[13] Johnson, T.: The Works of That Famous Chirurgeon Ambrose Parey, London, J. Clark, 1678, p. 590.

[14] Broster, L. R.: The Adrenals in Sex, Practitioner **158**: 307-314 [illegible] 1947.

Consequently, if an intersexual child shows progressive masculinization, clitoridectomy should be deferred until thorough trial of cortisone is made. In children seen after masculine social and psychologic trends are established, repair of hypospadias so that the development may proceed as in a boy may be the better choice; this was done in two personal cases.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. BURNS AND HINMAN

Dr. Frank Hinman, San Francisco: I would like to discuss the cases of exstrophy. As Dr. Burns said, we are now transplanting ureters at a much earlier period in children, and these are developmental anomalies, entirely different from the cases discussed in the second paper, which are endocrinological. These persons with exstrophy are definitely either male or female. They have normal functioning testes, or they have normal functioning ovaries. Repair of the hypospadias has ordinarily been done, with removal of the bladder, when these children are young, and a urethra is built with the idea that they may have seminal competence. A good urethra can be built, but this urethra does not function until these male children reach puberty. As a rule, it closes up. A definite atresia of the urethra occurs, so that when the person has an ejaculation there is no way for the ejaculate to get to the outside. It is completely occluded. And so with the girls; often they have an anomaly involving the vaginal outlet but the upper vagina and urterus are perfectly normal. They have a good normal uterus, and they have normal ovaries. We have had as patients two or three of these girls who grew to womanhood and married: One of them has had two children by cesarean section; one other has had a child. So far as their sex life is concerned, it should be respected as it is in the boy. My plea would be that, in the young boys, remove the bladder by cystectomy, but do not repair the hypospadias until they reach puberty. After they reach puberty and you build a urethra, there will be some opportunity for this urethra to be kept open so that they will have a seminal tract, and when they marry they can have a family and lead a normal sex life. A boy had his ureters transplanted when he was 6 years old; when he grew older, he was unable to have an ejaculation. He finally married and was in considerable misery. We attempted again to build a urethra, but it was too late and we were unsuccessful. The only thing we could do was to tie his vas in some hope that it might relieve him. In another case a girl had her ureters transplanted when she was about 6 years old. Later when she married, she was unable to have intercourse. We did not see her until she was 19 years of age. When she had started to menstruate, she had had apparently a hematocolpos, and her doctor, thinking she could not have children anyway, did a hysterectomy. It would have been a simple thing then to have built a vagina for this girl, as was done later. There was no reason that she could not have had children. This paper of Frank Hinman Jr. brings up food for thought. This, of course, is a special type of case—adrenal hyperplasia. There are conditions that result in masculinization in the female, such as adrenoblastoma of the ovaries, some disturbances of the pituitary and adenoma of the adrenal gland. We know that when there is adenoma of the adrenal gland, with disturbance of function we can remove the tumor and cure the patient, but here we have a progressive adrenal hyperplasia. When a person is born, he gets an X or Y chromosome from the parents. The male has the X-Y chromosome, and the female has the XX chromosome, so the male may have the X-Y and the female the XX. That is a genetic factor. Dr. Hinman has shown definitely that, even though children at 2 years of age are genetically females, they will have a congenital excess of androgenic activity from a hyperfunctioning adrenal gland, and they will continue to have this androgen stimulation all their lives. I think he makes a good point, that they should be considered with respect to what their best future happiness will be, and probably a great many of them will be much happier if raised as males than if raised as females, even though they are genetically females.

Dr. Jay J. Crane, Los Angeles: Dr. Burns has emphasized the frequency with which we see patients, usually very young children, suffering with congenitally enlarged, dilated, elongated and kinked ureters, associated with renal insufficiency and chronic pyelonephritis. The fact that the condition is usually bilateral speaks for its congenital origin. The term congenital neuromuscular dysfunction amply describes the pathological state of the ureters but does not portray the clinical aspects of the disease, which is so difficult to treat and so often fatal. By the time the urologist has had the opportunity to study these young patients, the pathological picture is often so far advanced that it is difficult, if not impossible, to establish the true causation with any degree of certainty; however, in the true cases of congenital megaloureters or neuromuscular dysfunction of the ureter, there are often associated neurological findings in the gastrointestinal tract. Therefore, I believe that a complete gastrointestinal study in these young persons will be of great benefit in establishing the true diagnosis and will assist greatly in prognosticating their recovery. I agree with Dr. Hinman that we should make haste slowly in deciding what sex female pseudohermaphrodites will turn out to be eventually. The information and advice given to the parents early are of paramount importance. Dr. Hinman has made an excellent presentation. I believe that any physician before treating these unfortunate persons should ponder a long time before doing anything more radical than an abdominal exploratory operation. Certainly, before the clitoris is amputated, the patient should have the benefit of a very thorough endocrinological study.

Dr. Edgar Burns, New Orleans: In regard to the management of patients with exstrophy of the bladder, it is important to give careful attention to the competency of the rectal sphincter. As a rule, the rectal sphincter in these patients is competent, but we have had two cases in which there was inadequate control after the ureters were transplanted into the rectosigmoid, and a plastic procedure had to be done on the rectum. This, of course, should be known before the ureters are transferred to the intestinal tract. We have resected the elongated, tortuous ureters in two cases. We believe, however, that this should be deferred until after all obstruction has been removed, because in these cases the ureters have a tendency to contract downward. In so contracting, they shorten, and it is not necessary in a great many cases to resect portions of the ureters themselves. In a few cases there will be adhesions between the loops of tortuous ureters, and, of course, when that occurs the kinks will remain and drainage from the kidneys may be inadequate. I would hesitate very much to do a nephrostomy because the kidneys in these cases have already been damaged and in the process of inserting a nephrostomy tube through the cortex, further damage to already impaired renal tissue will necessarily occur.

Airborne Infection.—The importance of air as a mode of spread of naturally occurring disease has been a long disputed question. Prior to 1890, it was a general belief, both among scientifically informed persons and the general public, that the air was the dominant mode of spread of infection. This is indicated by the general terms "miasma" meaning noxious vapors and "malaria" meaning bad air. With the advent of bacteriology, however, this belief rapidly disappeared. Although bacteria were found in air by Pasteur, these turned out to be mostly harmless saprophytes. Thorough studies of bacteria in the air were conducted by Fluegge and others in Europe and by Chapin and Winslow and others in this country. It was shown that whole rooms, or even buildings, could be readily contaminated by a spray of such harmless organisms as B. prodigiosus, but the weight of the evidence suggested that most pathogenic bacteria either rapidly died or lost their virulence when exposed to air. The attitude of most informed workers in the field swung strongly away from the concept of airborne infection toward the importance of contact and droplets. This attitude has remained the dominant concept up to the present time. Alexander D. Langmuir, M.D., The Potentialities of Biological Warfare Against Man, *Public Health Reports*, March 30, 1951.

FRACTURES OF THE HUMERUS

Carl Davis Jr., M.D., Chicago

The purpose of this paper is to present some of the problems and treatment of fractures of the humerus which frequently confront the general practitioner, physician and surgeon in everyday life. Nobody should fail to evaluate carefully, by physical and roentgenologic examination, the location and extent of the fracture, as well as the degree of injury to the soft tissues. Shock when present is treated with adequate supportive measures. Pain is relieved with appropriate medication. The treatment of fractures of the arm is dependent not only on the type of fracture but on other considerations such as age, general physical makeup and the economic situation of the patient. The knowledge of simple principles of nonoperative treatment will result in early and complete reduction in most instances. In the event of operative intervention, a competent surgical consultant must be called. The subjects in this report include fractures of the upper arm and the midhumerus and injuries about the elbow that involve the lower end of the humerus.

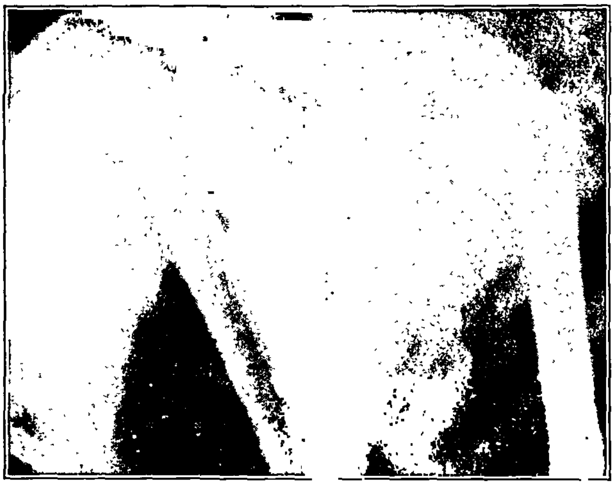

Fig. 1.—Original roentgenograms of fracture of the surgical neck of the humerus in a boy, age 12. Hanging cast was used.

FRACTURE OF THE SURGICAL NECK

One of the common injuries of the upper arm in young children and adults is a fracture of the surgical neck of the humerus. In most instances the patient falls on the outstretched hand. The arm is forced into abduction or adduction, and a corresponding fracture is the result. The adduction fracture is commonest in children (figs. 1 through 3). Occasionally there is impaction of the fragments which makes the treatment simple, but in many cases the short upper fragment is abducted and externally rotated by the supraspinatus muscle, and the long distal one is pulled inward by the action of the strong pectoralis major, teres major and latissimus dorsi muscles and displaced upward by the coracobrachialis and long head of the triceps muscles.

In the management of these cases two courses may be followed. If there is impaction of the fragments, a small pad is placed in the axilla, and the shoulder and arm are immobilized by a shoulder cap plaster splint which extends posteriorly down to the hand with the forearm flexed at a right angle. The upper arm is then fixed to the chest by a gauze dressing or elastic bandage while the forearm is held by a sling. This position is maintained four to six weeks. After this time, the splint having been removed, the arm is carried in a sling; active motion is encouraged, and physiotherapy started.

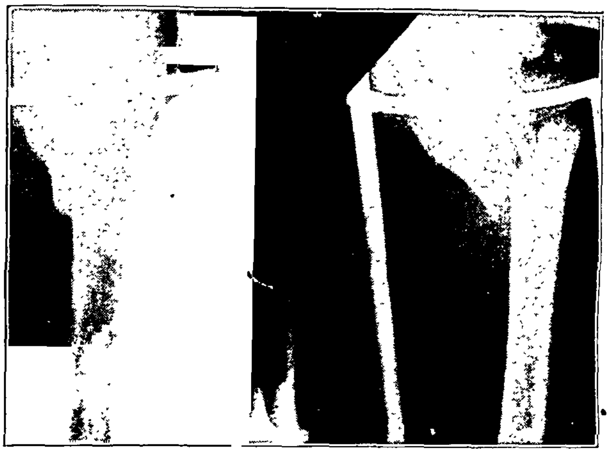

Fig. 2.—Patient was first seen 10 days after injury. Manipulation with the patient under anesthesia and traction with the arm supported in a Thomas splint failed to give satisfactory reduction.

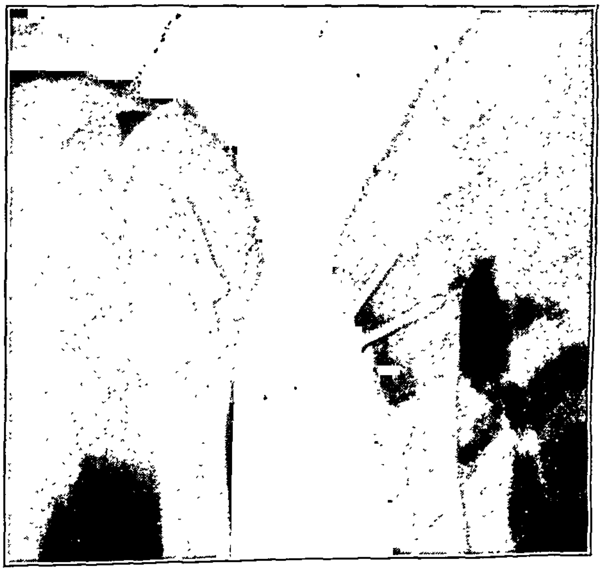

Fig. 3.—Operative intervention resulted in good reduction. Nine months postoperatively there was union of the fracture with good function of the shoulder and arm.

If there is displacement and overriding of the fragments, the fracture is manipulated with the patient under

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general anesthesia. The arm is then held in abduction at the required angle, as demonstrated by the roentgenogram, and immobilized in traction in a Thomas arm splint (fig. 4) until the roentgenograms indicate enough callus to free the arm safely from its traction support. An additional period of immobilization with a shoulder spica is carried out with the arm abducted 45 to 60 degrees. Some believe that a sling may be adequate instead of shoulder spica. However, it is my belief that in children the shoulder spica is used to advantage. This treatment has given a high percentage of good results. Caldwell and Smith[1] have recommended the insertion of a small Steinmann pin through the olecranon (the elbow is flexed at 90 degrees) in the treatment of unimpacted fractures of the surgical neck of the humerus where the reduction by manipulation is unsuccessful. The value of early active motion of the shoulder and elbow after union has developed is well recognized in the treatment of these cases.

The "hanging cast" was first suggested by J. A. Caldwell[2] for treatment of fractures of the shaft of the humerus. The hanging plaster cast is applied from the midarm to the wrist with the elbow flexed to a right angle and the forearm in midposition. A bandage suspends the hanging cast from the neck and is inserted through a wire ring imbedded in the plaster immediately over the radial styloid. Speed,[3] LaFerté and Rosenbaum[4] and others have recommended this form of treatment in fractures of the shaft and upper third of the humerus, including the surgical neck. Treatment with the hanging cast does not immobilize the fracture site, but it is a means of applying continuous traction to the arm. In my experience this method has not worked satisfactorily in children (fig. 5) with fractures of the surgical neck, or in some adults who are uncooperative and seem to fail to understand the objective. The hanging cast technic undoubtedly has a place in the treatment of many fractures of the humerus, but it has been utilized in selected cases only and should not be recommended for general use as the method of reduction and immobilization.

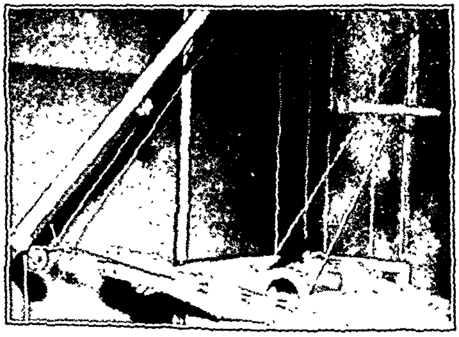
Fig. 4.—Photograph demonstrates the traction setup used frequently in the treatment of fractures of the humerus.

FRACTURE OF THE GREATER TUBEROSITY

Fractures of the greater tuberosity of the humerus are the result of a direct blow, due either to a fall on the shoulder or to avulsion of the tuberosity associated with dislocation of the humerus (fig. 6). Occasionally it is pulled loose by severe muscle pull. Watson-Jones claims that in nearly 30 per cent of dislocations of the shoulder there is a fracture of the greater tuberosity of the humerus. The patient is usually unable to rotate the arm outward. If there is no displacement of the fragment, the arm may be immobilized in a sling with a pad in the axilla; however, if the fragment is avulsed and the supraspinatus muscle becomes inactive because of its insertion into the bone, there is disability of the arm due to partial loss of abduction and external rotation. When a fracture of the greater tuberosity is associated with dislocation of the shoulder, the humerus should first be reduced with the patient under general anesthesia. Often the tuberosity will line up without further manipulation. Simple fracture of the tuberosity should be treated by attempted reduction. The arm is held in abduction and external

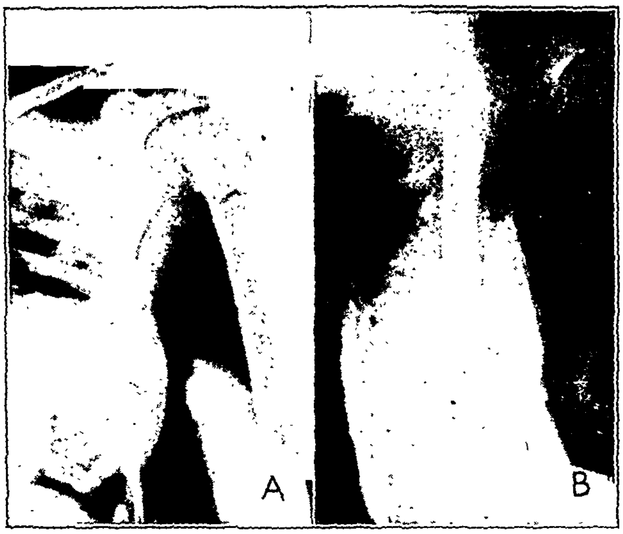

Fig. 5.—*A*, transverse fracture of the upper end of the humerus in a child, age 7. Patient was treated with a hanging cast. *B*, angulation of fracture of upper end of the humerus as result of improper immobilization and support.

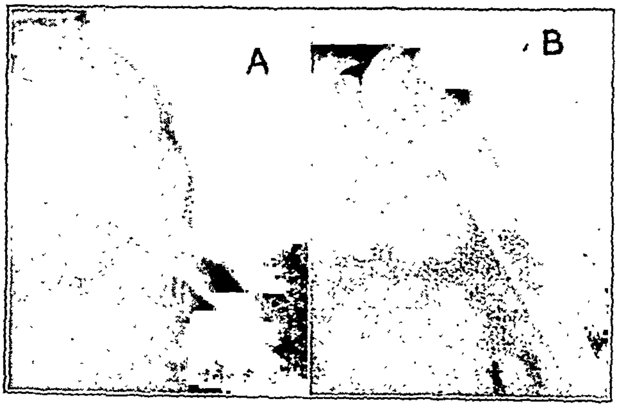

Fig. 6.—*A*, subcoracoid dislocation of the humerus with fracture of the greater tuberosity. *B*, roentgenogram showing shoulder joint after manipulation, with reduction of dislocation of the humerus and fracture of the greater tuberosity (Courtesy of Dr. J. H. Olwin).

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1. Caldwell, J. A., and Smith, J.: Treatment of Impacted Fractures of the Surgical Neck of the Humerus, Am. . Surg. 31: 141, 1936.
2. Caldwell, J. A.: Treatment of Fractures of the Shaft of the Humerus by Hanging Cast, Surg., Gynec. & Obst. 70: 421, 1940. Caldwell, J A: Treatment of Fractures in the Cincinnati Genrral Hospital, Ann. Surg. 97: 161, 1933.
3. Speed, K.: A Text-Book of Fractures and Dislocations, ed. 5, Philadelphia, Lea & Febiger, 1950.
4. LaFerté, A. D., and Rosenbaum, M. G. The "Hanging Cast" in the Treatment of Fractures of the Humerus, Surg., Gynec. & Obst. 65: 231, 1937.

rotation by means of a plaster shoulder spica. However, operative intervention may be necessary in some cases to obtain satisfactory reduction.

EPIPHYSEAL SEPARATION (UPPER END)

In children and young adults, separation of the upper epiphysis is occasionally seen (fig. 7). The mechanism of production is similar to that for fracture through the surgical neck. It is important to remember that accurate reduction is desired in an effort to avoid any disturbance in growth of the humerus. The treatment consists of gentle manipulation with the patient under anesthesia, with maintenance of the reduction in a Thomas splint for a few weeks. This may be followed by the application of a plaster torso cast with the arm abducted to 45 degrees for a time. In some cases, however, immobilization of the arm in a sling is adequate.

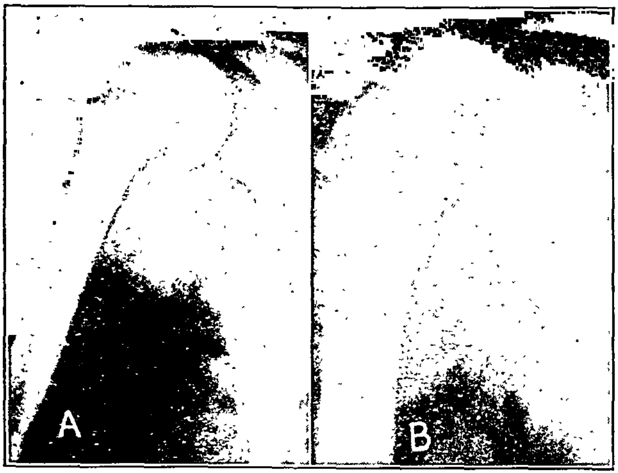

Fig. 7.—*A*, roentgenogram illustrating separation of the epiphysis of the upper end of the humerus. *B*, reduction after gentle manipulation and immobilization for a few weeks.

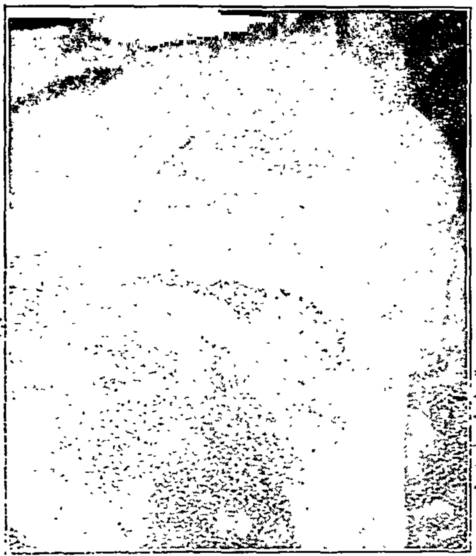

Fig. 8.—Roentgenogram of the upper end of the humerus showing fracture through a rarefied area in the bone. Patient was unaware of a bone cyst in the upper end of the humerus prior to injury.

FRACTURES OF THE SHAFT

Fractures of the shaft of the humerus are challenging to the physician because of the many problems which they present. The injuries of the shaft are often readily diagnosed because of the apparent deformity and loss of function. Miller has emphasized the importance of recognizing concomitant injury of the large vessels and nerves, especially the radial nerve. One should note in writing the "presence or absence of wrist drop, for, if this is first observed after reduction has been made, an embarrassing controversy may arise as to the cause of its production."[5] During delivery, particularly in breech or vertex presentations, the middle portion of the shaft is occasionally fractured. The proximal fragment is usually drawn outward by the pull of the deltoid muscle. Occasionally radial nerve palsy develops. The treatment of the fracture consists of reduction and simple immobilization of the entire arm in a posterior splint. With proper support, bone union is rapid in infants.

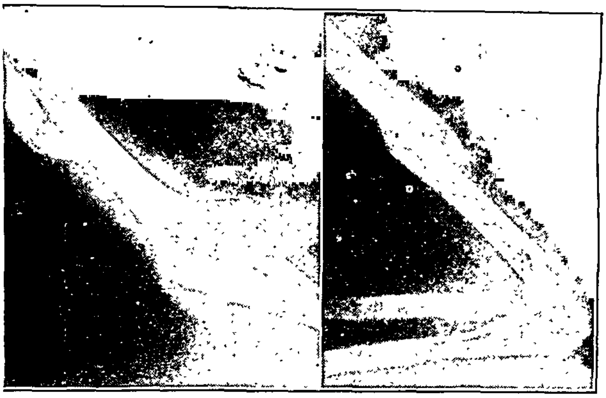

Fig. 9.—End result of treatment of fracture in the midhumerus in a young boy who sustained multiple fractures in an automobile accident.

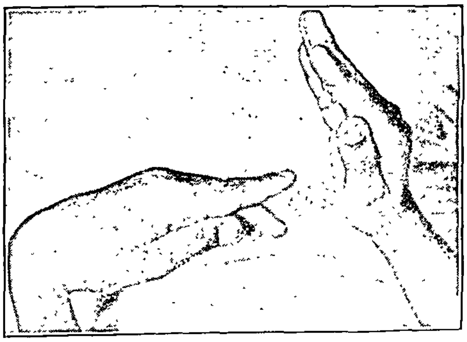

Fig. 10.—In this patient, a radial nerve palsy developed, with a wrist drop (left hand). Neurolysis resulted in normal function of the hand.

Certain pathological conditions as solitary bone cyst (fig. 8), Paget's disease, osteomyelitis, metastatic carcinoma and sarcoma may predispose the arm to the spontaneous fracture of the shaft of the humerus. The patient, unaware of the disease process in the bone, learns of the condition for the first time when his arm breaks without any obvious reason.

There is a possibility of delayed union or nonunion in fractures of the mid portion of the humerus. Factors contributing to nonunion are interposition of the soft parts, improper application of the cast, or injury to the an episodic, recurrent, central nervous system disorder rather than with the particular pattern of the seizures themselves, it does not seem urgent to digress at this point with a detailed description of seizure types, the major features of which are familiar to most practicing clinicians.

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[5] Miller, E. M., and Fell, E. H.: Fractures of the Upper Arm, in Christopher, F.: Surgery, ed. 5, Philadelphia, W. B. Saunders Company, 1949.

The general behavior that is to be presented as primarily symptomatic of epilepsy in children consists of a cluster of traits, which may be most adequately described in terms of its five component features. There is no single term that accurately describes the entire syndrome, and if there were it would not, for some time at least, be intelligible to parents and others from whom information must be secured as to the behavior of epileptic children in comparison with that of their nonepileptic siblings or companions. The presence of several, but not necessarily all five, traits contributes to the general pattern. No one or two of them alone are characteristic of *this or any other psychological disorder*. The five traits to be described more completely below appear to be (1) erratic variability in mood or behavior, (2) hypermotility, (3) irritability, (4) short and vaccilating attention span and (5) a rather selective difficulty in mathematics as a school subject.

The secondary symptoms, representing the child's reaction to his convulsive disorder and the way his handicap is regarded by his family and others in the community, being subject to more variables than the primary symptoms, do not fall into any such characteristic cluster. For some children the threat of being unexpectedly overwhelmed by a major seizure may inspire perennial dread or anxiety. For others, oversolicitude on the part of worried parents may hamper their activities and prove a source of irritation. For still others, exclusion from school and other community activities that are accepted as the birthright of youngsters in a democracy may provoke despair or resentment. This very variety in secondary reactions has led many students of epilepsy in childhood to conclude that there is never any specific behavior pattern for children subject to convulsions and that one must consider any apparent unusual reactions only in terms of psychological accompaniments of chronic illness.

THE PRIMARY BEHAVIOR DISTURBANCES

My opinion that there is a cluster of behavior traits that frequently occur in conjunction with epilepsy in childhood arose originally from my opportunity over a period of some years to compare the behavior of a great number of children with convulsive disorders and nonepileptic children sharing activities of a comprehensive program in a children's psychiatric hospital.[1] Concomitantly, information obtained in office practice while taking medical and psychiatric histories on children with convulsions, in which specific inquiry was made as to their behavior as compared to that of others in the family, led to similar conclusions. Moreover, there are many references in the literature that imply or directly suggest that others have made similar observations, though the reports may differ in terminology, emphasis and conclusions.

The five traits which were briefly enumerated above may now be described in more detail.

1. Erratic variability in mood and overt behavior implies an apparently unprecipitated, purposeless fluctuation in social adaptability occurring at longer or shorter, and usually irregular, intervals. The child who is old enough to express his own opinion of himself may speak of his "good and bad days." The mother may report that "for no good reason" on some mornings her child's disposition is conspicuously different from what it is on other days and go on to say that she knows from experience that it is likely that on certain days the child is going to have a difficult time. A teacher may observe that on some days or parts of days it seems to be much more difficult for a child to sit still in the classroom, to concentrate on his school work or to remember what he has learned previously. On such days he is often more irritable in his relationships with his classmates. Not only are the fluctuations in mood and behavior conspicuous, but also the lack of apparent external cause for them is particularly *puzzling and often frustrating to the child*, to his parents and to his teachers. This variability in disposition appears to be a basic characteristic of some epileptic children and very much colors and modifies the other behavior traits about to be discussed.

2. Hypermotility refers to gross motor activity, more extreme or more constant than is usually seen in other children of comparable age and development. The actual degree of hyperactivity may decrease as the child becomes older and maturer, but it still continues to be a conspicuous characteristic. There are many synonyms for such overactivity, such as excess energy, restlessness, drive, or "driveness."

3. Irritability (which is probably synonymous with irascibility) relates to the relative ease with which some persons become impatient, angry or aroused to aggressive, hostile, vindictive activity. It is so frequent a symptom in many sorts of emotional maladjustments that it would hardly be worthy of inclusion in the present category were it not for the degree with which it impresses many parents, teachers and other observers as being present in some epileptic children. It is, of course, also, of the several characteristics which we are discussing, one of the most likely to bring a child into conflict with his fellows. It seems to be subject to the variability that we have just discussed, and the fact that it occurs often without any relationship to the child's surroundings sometimes makes it difficult to understand.

4. Short attention span refers to a child's inability to concentrate, to apply himself continuously to a task or a matter of interest. Distractibility would be an equally appropriate term. In consideration of such a trait, due allowance must be made for the child's developmental level and the nature of whatever activity or task is supposed to be the focus of his attention at any particular time or in any particular situation. This characteristic is also subject to wide variations of the same unpredictable nature as those just discussed.

5. Selective difficulty with mathematics in the school situation is, of course, noted only in children whose school curriculum includes arithmetic. In older children the difficulty is most likely to be reported in situations calling for reasoning or problem solving, as contrasted

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[1] The Emma Pendleton Bradley Home, East Providence, R. I.

with such tasks as merely memorizing tables or processes. In some children of superior intelligence the presence of a reading or spelling disability may mask the importance of the arithmetic problem.

Earlier Reports.—It is interesting, in the light of the observations which have led to the present contribution, to refer to a report by Clark in 1918,[2] who noted many of the same behavior traits in children with convulsive disorders. Over a period of many years this author presented a great deal of evidence attempting to demonstrate that convulsions occurred only in individuals of a very definite type of personality. In this particular study he carefully questioned the parents of 50 children subject to convulsions who were seen as private patients, and he recorded a number of personality traits occurring in a significant proportion of them which he considered to be related to the problem of epilepsy itself. Among these, he noted that "a factor most frequently noted in the supersensitive, egoistic infancies of these individuals was the extreme lability of mood, 'one moment contented, the next irritable beyond power of appeasement.' " Clark seems to be describing the quality of variability in these remarks. "In at least a dozen cases and as school pupils these potential epileptics were restless, turbulent, argumentative and quarrelsome in the extreme," describes hypermotility and irritability, the latter characteristic being one which Clark expands with such phrases as "the majority of cases show irritability from birth." He further noted that "two-fifths showed a marked inability to concentrate their attention, so that they were usually behind in several studies, such as algebra and mathematics," a statement which specifically refers to short attention span and difficulty in arithmetic, as mentioned above. He stressed the fact that he was concerned with children who were not mentally retarded, and in spite of his emphasis that the various characteristics that he delineated were earmarks of a very special personality, he noted considerable variation in attributes. Moreover, without the benefit of the many years of accumulated child guidance experience now available since he made his study, he failed to discriminate between symptoms that might be characteristic of the neurological disorder itself, as contrasted with those which are more indicative of the reaction of the child to his illness, the concern of his parents or problems of adjustment he faces in the community.

Electroencephalographic Evidence.—Numerous reports of electroencephalographic studies of maladjusted children contain descriptions of behavior of the type just described in association with electroencephalographic tracings similar to those seen in epileptic children. Jasper, Solomon and Bradley[3] in 1938 described a group of 30 children "whose behavior might be described as hyperactive, impulsive, highly variable and involving spontaneous misbehavior apparently unrelated to environmental situations," of whom 70 per cent showed electroencephalographic records judged to be epileptiform. Among several patients reported on by Lindsley and Bradley[4] were three whose electroencephalograms were of the convulsive type, who had actually suffered from seizures and for whom "the main complaint and major symptoms while in the hospital were primarily those of unacceptable behavior, such as hyperactivity, destructiveness, emotional outbursts and negativism." Strauss, Rahm and Barrera[5] reported the cases of a number of children who showed cortical dysrhythmias, who had been known to have seizures, and in some of whom symptoms included episodic temper outbursts showing a relatively normal type of behavior between outbursts. Others who report electroencephalographic studies and describe similar behavior characteristics in association with tracings of the epileptic type are Lindsley and Cutts,[6] Brown and Solomon,[7] Bradley,[8] and Jenkins and Pacella.[9] The general type of behavior described in several of these reports lends weight to my contention that there is a behavior syndrome apparently directly related to the neurophysiological disturbances that result in various types of seizures and that may be graphically recorded in the electroencephalogram.

In a recent discussion, Jasper[10] notes "the electroencephalogram has served to broaden the field of epilepsy to include many episodes of thought and behavior." He also adds "any portion of the brain occupied by epileptiform discharge is lost to the individual for normal adaptive or integrative action of that area." Since fluctuation and variability are characteristic of the abnormalities recorded in the epileptic type of electroencephalogram, we can sense a possible explanation of the variability in behavior and short attention span described as part of the syndrome considered as a primary behavior characteristic of epileptic children.

Similarity to Organic Behavior.—Many writers on epilepsy in childhood mention the fact that behavior difficulties, when present in this condition, often resemble those seen in patients with organic brain damage. The behavior referred to is apparently more or less the same syndrome under discussion in this section. Bender's[11] comprehensive review well summarizes the essential features. She speaks of "hyperkinesis which is not modifiable by psychotherapy" and refers to "organic driveness," a term first introduced by Kahn and Cohen[12] some years earlier. They describe it as a behavior syndrome, supposedly associated with brain stem damage and characterized by hyperkinesis, inability to maintain quiet attitudes, abruptness in movements and explosive release of motor activity. Among their case reports is that of a child who showed constant motion with pressure to speech, distractability and "unpredictable oddities in executing commission." Ewalt [13] comments on the similarity of this and other "organic behavior" to what is seen in epileptic children, illustrating his point with case reports. Strauss and Lehtinen [14] describe the brain-injured child as erratic, uncoordinated and uninhibited. Rosenfeld and Bradley [15] itemize the behavior of children of unimpaired intelligence who have suffered anoxia in infancy as being high lighted by "unpredictable variability in mood, hypermotility, compulsiveness, short attention span, fluctuant ability to recall material previously learned and conspicuous difficulty with arithmetic in school." Possibly the same throwing out of control of centers facilitating adaptive and integrating behavior described by Jasper [10] as related to the behavior of epileptic individuals also occurs as the result of brain damage. The similarities of behavior in epileptic children, even in the absence of objective evidence of brain damage, may be dependent on the same mechanism as that occurring in known brain-injured patients.

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[2] Clark, L. P.: The True Epileptic, New York Med. J. **107**:817 (May 4) 1918.

[3] Jasper, H. H.; Solomon, P., and Bradley, C.: Electroencephalographic Analyses of Behavior Problem Children, Am. J. Psychiat. **95**:641 (Nov.) 1938.

[4] Lindsley, D. B., and Bradley, C.: Electroencephalography as an Aid to Understanding Certain Behavior Disorders of Childhood, Ztschr. f. Kinderpsychiat. **6**:33 (July) 1939.

[5] Strauss, H.; Rahm, W. E., Jr., and Barrera, S. E.: Studies on a Group of Children with Psychiatric Disorders, Psychosom. Med. **2**:34 (Jan.) 1940.

[6] Lindsley, D. B., and Cutts, K. K.: Clinical and Electroencephalographic Changes in a Child During Recovery from Encephalitis, Arch. Neurol. & Psychiat. **45**:156 (Jan.) 1941.

[7] Brown, W. T., and Solomon, C. I.: Delinquency and the Electroencephalograph, Am. J. Psychiat. **98**:499 (Jan.) 1942.

[8] Bradley, C.: Problem Children: Electroencephalographic Diagnosis and Pharmacologic Treatment, Connecticut M. J. **6**:773 (Oct.) 1942.

[9] Jenkins, R. L., and Pacella, B. L.: Electroencephalographic Studies of Delinquent Boys, Am. J. Orthopsychiat. **13**:106 (Jan.) 1943.

[10] Jasper, H. H.: Electroencephalography in Epilepsy, in Hoch, P. H., and Knight, R. J.: Epilepsy, New York, Grune & Stratton, Inc., 1947, pp. 182 and 188.

[11] Bender, L.: Organic Brain Conditions Producing Behavior Disturbances, in Lewis, N. D. C., and Pacella, B. L.: Modern Trends in Child Psychiatry, New York, International Universities Press, Inc., 1945, pp. 155-192.

[12] Kahn, E., and Cohen, L. H.: Organic Driveness: A Brain Stem Syndrome and an Experience, New England J. Med. **210**:748 (April 5) 1934.

SECONDARY BEHAVIOR DISTURBANCES

The behavior that, because of its frequency and consistency in association with convulsive disorders, I have been discussing in terms of primary characteristics may not be conspicuous in some epileptic children. Moreover, these traits will probably seem most relevant to convulsive disorders to clinicians who have had opportunities to directly compare the behavior of epileptic and nonepileptic children living in the same environment or have focused on such behavior in taking clinical histories. They may not be equally apparent when studies are carried out from different viewpoints. In reports oriented largely from the psychologist's point of view, Gahagan and Sullivan,[16] Price, Kogan and Tompkins,[17] Lisansky [18] and Kogan [19] imply that epileptic children have no personal characteristics which distinguish them from other children of similar background and general capabilities. Lennox [20] and Bridge [21] in numerous contributions based on extensive clinical experience emphasize the fact that children who are the victims of chronic illness, particularly when its major symptoms occur dramatically and unpredictably, are likely to establish behavior patterns based on their personal reactions to their disorder and the way it is handled by those about them. I would suggest that such reactions be considered secondary to epilepsy, but they are certainly important for clinical consideration in every patient, whether or not the traits previously described are likewise conspicuous.

The physician who is genuinely concerned with his patient's welfare will always keep in mind the fact that all human beings have their own individual feelings and attitudes about their illness and also about the way other persons deal with them and their disorders. In the case of epileptic children these may be dread of seizures themselves, particularly if they are of major proportions or tend to occur while the child is in public places, from which repeated episodes may eventually result in his exclusion. In the case of other children, the parents, who must inevitably be concerned about seizures, regardless of the degree of their severity or crippling nature, may communicate their anxiety to the patient and thus aggravate whatever concern is already disturbing his emotional equilibrium. Unfortunately, public attitudes toward seizures and their victims are in many quarters unenlightened, and many epileptic children are being excluded from activities in which they could profitably engage. Such restrictions in some instances stimulate compensatory behavior reactions that may be a problem for the patient or his family. The possibility that certain anticonvulsive medications may, for some children, have an unfavorable effect on behavior must not be overlooked.

The reaction of children to these and other factors has been well summarized by Lennox [20] and by Bridge,[21] and the latter particularly has dealt with the general management of these problems in a comprehensive manner.

TREATMENT BY THE PHYSICIAN

The ultimate aim of treatment in any disorder is to restore the patient to as full participation in all desirable life activities as is consistent with his health. In the case of epilepsy, medical treatment aimed at control rather than cure of seizures is usually the first objective of most physicians. Since, however, therapy must usually be continued over long periods of time, it must not be pushed to such an extent that, as the result of whatever regimen is employed, the child is denied a reasonably full participation in all those activities that at successive developmental stages are essential to his physical, intellectual and emotional growth. It is not my intention to critically evaluate any of the accepted medical programs designed to eliminate the major symptoms of seizures. I would like, however, to point out that large doses of sedative drugs may seriously interfere with effectual mental functions, and that too drastic restrictions of diet or activity may set a child too far apart from the stimulating companionship of his fellows and the benefits of a full educational program. Moreover, the physician, in his own anxiety to be thorough both diagnostically and therapeutically, may by his manner of handling the situation engender more anxiety than reassurance in both parents and children. Supervising adequate treatment of an illness that has for centuries been dreaded because it has been poorly understood is an art that calls for the physician's reassurance and enthusiastic support of the grow-

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13. Ewalt, J. R.: Organic Behavior Problems, Texas Rep. Biol. & Med. 3:247 (Summer) 1945.

14. Strauss, A. A., and Lehtinen, L. E.: Psychopathology and Education of Brain Injured Children, New York, Grune & Stratton, Inc., 1947.

15. Rosenfeld, G. B., and Bradley, C.: Childhood Behavior Sequelae of Asphyxia in Infancy, with Special Reference to Pertussis and Asphyxia Neonatorum, Pediatrics 2:74 (July) 1948.

16. Sullivan, E .B., and Gahagan, L.: On Intelligence of Epileptic Children, Genet. Psychol. Monogr. 17:309, 1936.

17. Price, J. C.; Kogan, K. L., and Tompkins, L. R.: Prevalence and Incidence of Extra-Mural Epilepsy, in Hoch, P. H., and Knight, R. L.: Epilepsy, New York, Grune & Stratton, Inc., 1947, pp. 42-47.

18. Lisansky, E. S.: Convulsive Disorders and Personality, J. Abnorm. & Social Psychol. 43:29 (Jan.) 1948.

19. Kogan, K. L.: The Personality Reaction Pattern of Children with Epilepsy, in Epilepsy, A. Res. Nerv. & Ment. Dis., Proc., Baltimore, Williams & Wilkins, 1947, vol. 26, pp. 616-630.

20. Lennox, W. G.: Seizure States, in Hunt, J. M.: Personality and Behavior Disorders, New York, The Ronald Press Co., 1944, pp. 953-956; Therapeutic Agents in the Treatment of Epileptiform Seizures, in Advances in Pediatrics, New York, Interscience Publishers, Inc., 1948, vol. 3, pp. 91-130.

21. Bridge, E. M.: Epilepsy and Convulsive Disorders in Children, New York, McGraw Hill Book Co., 1949.

ing child, quite as much as it does for his protection. An awareness of and willingness to deal with both the primary and secondary behavior characteristics of the patient is an important portion of the physician's responsibility, if the child's seizures are to be controlled at the same time that he is participating in as full a program of normal childhood activities as is possible.

Treatment of Primary Behavior Disturbances.—If the cluster of symptoms referred to above constitute a handicap to successful school or community life, they must be one object of treatment. Since these symptoms presumably are the result of neurophysiological disturbances of the same general nature that also produce seizures, they will not, aside from their recognition and acceptance as such, yield to psychotherapeutic measures alone and must be dealt with medically. The literature on their pharmacologic control is recent but encouraging. It is interesting that little mention is made of the effect of the older drugs, particularly bromides and phenobarbital, on behavior, except to indicate that overdosage will aggravate behavior difficulties, primarily by dulling sensibilities and temporarily retarding effective intellectual function. In my experience, based on innumerable reports from parents and nurses who are in daily intimate contact with epileptic children, phenobarbital, even in average nonsedative doses, results in increased irritability and hyperactivity and, at times, interferes with effectual ability to concentrate attention upon specific tasks, such as school work. The interesting and convincing study of Lindsley and Henry [22] bears this out. They found that when the effect of conventional therapeutic doses of phenobarbital on behavior was compared under controlled conditions with that of other drugs commonly used in children with convulsive disorders, it resulted in less satisfactory adjustment than when no medication was given.

After the introduction of diphenylhydantoin (dilantin®) sodium into clinical practice, a number of observers noted that it frequently had a favorable effect on behavior, even when seizures themselves were not a major problem. The reports of Putnam and Merritt,[23] Solomon,[24] Brown and Solomon,[7] Bradley [8] and Brill and Walker,[25] among others, present evidence of this nature. The major effects were those of decreased irritability, control of hypermotility and occasional decrease in the variability of behavior noted above as primary symptoms. Other anticonvulsive drugs reported as having similar beneficial effect on children with seizures, or those whose electroencephalograms were of the "epileptic" type, are trimethadione (tridione®) reported by Perlstein and Andelman,[26] methylphenylethyl hydantoin (mesantoin®) as noted by Tietz [27] and phenacetylurea ("phenurone") studied by Livingston and Kadji.[28]

In my experience, borne out by the controlled studies of Lindsley and Henry,[22] the most effective preparations for the control of the primary behavior disturbances have been the amphetamines, notably racemic amphetamine (benzedrine®) sulfate and its dextrorotatory isomer known commercially as dexedrine® sulfate. These have been extensively reported in a recent article,[29] in which benzedrine® was found to be more efficient than dexedrine® in epileptic children. These preparations in rather full adult doses (10 to 20 mg. daily in the morning) even in younger children often dramatically reduce the variable swings of mood and activity so frequently seen as part of the primary behavior disturbance. They may also increase attention span, with resulting favorable effect for older children in arithmetic achievement. Since these drugs are central nervous system stimulants, and with the exception of isolated reports have not been notably effective in the control of seizures themselves, it is thought that their favorable effect on behavior is associated with their known stimulation of mood, possibly rendering variations in sensitivity and irritability less disturbing to the patient. The amphetamines may always be used, when indicated, in conjunction with conventional anticonvulsive medical regimens, their major drawback being their inhibition of appetite for food. Occasionally, when large doses of sedative drugs are employed, their stimulating action may neutralize annoying soporific effects, as illustrated in one of Bradley's case reports.[30]

Treatment of Secondary Symptoms.—Secondary symptoms, representing the child's reaction to his illness and the emotional atmosphere in which he finds himself, are proper material for psychotherapeutic measures. The essentials of their effectual handling have been suggested repeatedly above. These may be summarized by advocating control of seizures without overdosage with sedative drugs, helping the child and his parents understand and realistically accept his illness with a minimum of crippling emotional overtones and assuring the patient of as full and free a program of all usual childhood activities as possible. Frequently this full program in school and in the community will require that the physician contribute to the enlightenment of school personnel as to the nature of the child's illness, its harmlessness as far as other children (and their parents) are concerned and the contribution to the patient's total welfare, development and happiness that acceptance into community activities assures. Information about epilepsy is available to lay readers through such organizations as the National Epilepsy League, and the informative volumes by Lennox [31] and Putnam [32] are enthusiastically recommended.

CONCLUSION

Convulsions and their accompanying behavior disturbances are still a problem for many children. However, our increasing understanding of the basis of epilepsy through modern advances in neurophysiological techniques and our potential ability to control and eliminate seizures themselves through the many new therapeutic agents that have become available in recent years should give us confidence in the medical management of these disorders. If, in addition, the feelings and behavior of epileptic children may be considered and constructively handled as has been suggested, there is ample cause for optimism. The well informed and alert pediatrician or family physician may well impart this to those who share with him the responsibility for epileptic children.

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[24] Solomon, P.: The Physician's Status in Child Guidance Work, New England J. Med. 227: 427 (Sept. 17) 1942.

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[28] Livingston, S., and Kadji, L.: The Use of Phenurone in the Treatment of Epilepsy, J. Pediat. 36: 159 (Feb.) 1950.

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[31] Lennox, W. G.: Science and Seizures, New York, Harper & Brothers, 1946.

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SUMMARY

Children who are subject to convulsions may have behavior difficulties of two general sorts. There are often behavior symptoms that are the primary, direct result of the neurophysiological disturbances that may be recorded electroencephalographically, and that are also presumably directly related to the seizures themselves. Such behavior symptoms are best treated medically, the most effectual preparations at present available for this purpose being the amphetamines. Other behavior disturbances, representing the child's reaction to being ill and to the way he is handled by those about him, may be considered as secondary symptoms; these are less specific in nature and must be treated at the psychological level. Adequate medical management of the epileptic child involves consideration of his behavior and emotional reactions, in addition to therapy designed to control his seizures.

ABSTRACT OF DISCUSSION

Dr. William W. Belford, San Diego, Calif.: The facts presented are the results of over 15 years of study and work with the problems of children subject to convulsions and the problems of their parents and environment. Many drugs and forms of treatment are presented each year, but few are so well studied and tried out and proved by use. Often the school teachers and nurses need instruction and encouragement in the care of these children such as only physicians can give them. A visit with them does both the physician and the child much good and can iron out much friction and misunderstanding. More time spent with the parents in encouraging and explaining the problems to them is just as helpful as the drugs that we prescribe. The burden of epilepsy is far greater than just drug treatment and the daily problems of living. Let me urge that the diagnosis of epilepsy be made with great care. It is so hard to correct a mistaken diagnosis once it is put on a child. Those of you who deal with children and adults through their lives are quite aware of the tag of epilepsy that prevents someone just out of school or a young adult from getting a job.

Dr. E. D. Anderson, Minneapolis: With the advance in knowledge of the diagnosis, prognosis, and treatment of epilepsy, and with a better understanding of the psychological problems of the epileptic and his family and the effect that they can have upon the course of the disease, the medical profession is assuming a more positive and hopeful attitude. Unfortunately, many of us still confine our treatment to the giving of drugs, and neglect the equally important part of therapy which Dr. Bradley presented; namely, the prevention and treatment of the emotional and behavior difficulties which these children so frequently have. In my experience, the biggest factor in helping the epileptic child to adjust to his illness is the understanding and attitude of the parents to the disease and to their child. Unless they can be helped to understand their own emotional problems connected with the illness, it is almost impossible to help the child. One of the most common and damaging emotional problems that occurs in these parents is a feeling of defeatism. When the parents have this attitude, the child is almost bound to develop the same feeling. It is wrong not to give the encouragement of hope which our present prognosis of treatment gives us the right to do. Many parents develop feelings of anxiety regarding the physical welfare of their child because of the seizures and momentary lapses of consciousness he has and the danger of injury in traffic and at play. Unless the parents are given proper guidance, they are likely to restrict the child's activities far beyond what is necessary. We must try to help them see that it is necessary to take certain chances in order that the child may lead as near normal a life as is possible. Not to do so will invariably lead to emotional trauma, with resulting behavior and personality problems. Another common form of anxiety which the parents have is the fear that their child will deteriorate mentally. As a result, they may do one of two things. To reassure themselves that the youngster is bright, they constantly push him far beyond his capacity to excel in school. Thus, he may become frustrated, discouraged, or resentful. Other parents, instead of pushing, hold him back. They make all decisions and do everything for the child, thereby preventing him from becoming independent. Some parents have feelings of guilt regarding the child's illness. Whatever the cause of the feelings of guilt, the parent is likely to be overly protective and indulgent and the child becomes overdependent, with resulting increased emotional and behavior problems. Frequently parents of an epileptic child develop feelings of shame regarding the illness. Such parents have a tendency to withdraw from normal social, community and civic activities. They particularly need the help which such activities will give. If you and I do nothing but help such parents to see that epilepsy should not be considered a thing of shame and help them to keep interested and active in the normal activities of life, we will have done a great deal. One or more of such problems are almost bound to arise in the parents of epileptic children. If they are not prevented or controlled, the parents are going to become emotionally insecure and unstable, and they will be unable to adequately help their child meet the difficult problems which will face him. Physicians are in a strategic position to help these parents by giving them warm understanding and wise counsel and guidance.

Dr. Charles Bradley, Portland, Ore.: I do not know how many children who are subject to seizures have behavior difficulties, particularly those five cardinal traits that we mentioned. My guess would be one-half to two-thirds. There are just enough children who do not have problems of that sort, to make it possible for many of us to say that there is no characteristic behavior of the epileptic child. There are no persons in relation to the young child who are as important to him as his own parents; their support and enthusiasm are even more important than that of the family doctor. If we have the confidence of the parents and a reasonable acquaintance with some of these things, we can offer our patients more assurance and encouragement, and engender less anxiety in them and the parents than has been the case in the past.

Occiput Posterior.—At present there is general agreement among students of the problem of the occiput posterior position insofar as most of the practical aspects are concerned. It is a normal, frequently occurring position and radical interference with it is no longer justified. With competent handling of the occiput posterior, the safety of mother and baby is quite comparable to that obtained with other positions. . . . The rule of the clinic at the University of Minnesota may be quickly stated. Occiput posteriors are left alone unless a specific indication for interference presents itself. The usual indication is lack of progress with the head at the outlet. If the head can be easily rotated with the hand, this is done and the patient is given further opportunity to deliver spontaneously. If it can be gently rotated with only the fingers of one hand on the forceps, this is done. If any resistance to rotation is encountered, delivery is carried out as a posterior and usually after deep episiotomy.—John L. McKelvey, M.D., and Eugene J. Diefenbach, M.D., The Obstetric Significance of the Posterior Occiput Position, *Postgraduate Medicine,* March 1951.

OBSERVATIONS ON ACUTE POLIOMYELITIS WITH RESPIRATORY INSUFFICIENCY

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and
Harold G. Wolff, M.D., New York

In a series of 50 adult patients with acute poliomyelitis managed at the New York Hospital in 1949, 17 needed artificial respiration. Of these 17, nine had respiratory obstruction due to partial or complete paralysis of swallowing or coughing. The respiratory exchange of oxygen and carbon dioxide was intensively studied in this entire group of patients. The effects of the rapid rocking bed, the cuirass respirator and the tank respirator were ascertained on those in whom respiratory decompensation developed. In this preliminary communication some of the observations are reported.

These patients were a severely ill group, many of whom were referred to the New York Hospital because of the desperate nature of their illness. Eight of the 17 died of rapidly progressive poliomyelitis, which both involved the innervation of the peripheral respiratory apparatus and extensively destroyed brain stem centers. Death was due either to circulatory collapse, apparently the result of involvement of the medullary reticular substance by the virus, or to the effects of hypoxia and hypercapnia accompanying respiratory failure.

OBSERVATIONS ON CIRCULATORY AND RESPIRATORY FAILURE

Baker and associates[1] have shown that cardiovascular signs and symptoms are consistently associated with severe damage to more than 19 per cent of the large reticular cells of the medulla. In our experience, arrhythmias and shock due to failure of neurogenic cardiovascular regulation proved unresponsive to therapeutic measures, such as administration of the digitalis glycosides or phenylephrine (neo-synephrine®) and parenteral injection of fluids.

In contrast to the discouraging prognosis offered by circulatory failure, the ill effects of respiratory insufficiency could often be prevented or reversed, and therefore the maintenance of a physiologic respiratory exchange was given primary attention.

Effects of Hypoxia and Hypercapnia.—In dealing with poliomyelitis, the importance of avoiding hypoxia and the dangers attendant on the hypoxic state have in general received greater emphasis than have the incidence and sequelae of carbon dioxide retention. Hypoxia results in increased capillary permeability,[2] pulmonary edema,[3] cardiovascular collapse[4] and damage to the central nervous system.[5] High levels of carbon dioxide in the blood (hypercapnia) result from inadequate alveolar elimination of the gas and if not reduced lead to blood acidosis, headache, hypertension,[6] disorientation and loss of consciousness.[7] Hypercapnia may also depress the respiratory center[8] and cause vascular collapse.[9] Nearly all these effects of hypoxia or hypercapnia may further interfere with respiratory gas exchange or intensify the severity of an acute illness. The prevention or reversal of even borderline respiratory decompensation is thus of first importance in managing patients with acute poliomyelitis.

Evaluation of Respiratory Insufficiency.—In evaluating the oxygenation of these patients with acute poliomyelitis, both the efficiency of respiratory gas exchange and the ability to move air in and out of the lungs were repeatedly ascertained. Arterial oxygenation was followed by studies with the oximeter (which photoelectrically measures oxyhemoglobin content),[10] and these determinations were standardized by direct arterial blood gas analysis. Carbon dioxide exchange was evaluated by frequent determinations of venous plasma carbon dioxide-combining powers and periodic estimations of arterial carbon dioxide contents. Alveolar air samples were also analyzed. Vital capacity was measured with a waterless calorimetric spirometer.

Marked failure of adequate elimination of carbon dioxide occurred in at least four well oxygenated patients in the present group. These patients, all of whom were receiving oxygen therapy, maintained arterial oxygen saturations of 95 to 100 per cent despite venous plasma carbon dioxide-combining powers of 85 to 100 volumes per cent and similarly elevated arterial carbon dioxide contents. They suffered headache, hypertension and disorientation during the time of increased blood carbon dioxide levels, and these symptoms were reversed in three by increasing ventilation and eliminating the accumulated carbon dioxide.

Measurement of Vital Capacity.—Observations on acutely ill adult patients indicated that no significant threat to adequate gas exchange existed until the vital capacity fell to 1,000 or 1,200 cc., since the patients studied consistently maintained physiologic levels of their respiratory gases when their vital capacities exceeded this

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amount. When 1,000 to 1,200 cc. was reached, however, arterial oxygen saturations and venous plasma carbon dioxide-combining powers were more closely followed, since it was observed that when the patient's paralysis was still progressing respiratory decompensation frequently appeared shortly after this point. Studies with the spirometer[11] on a group of adult respirator patients convalescing from poliomyelitis demonstrated that they were consistently able to meet their breathing requirement without any artificial respiration or supplementary oxygen when their vital capacities climbed to the low level of 600 to 700 cc. However, their breathing requirements were less than those of acutely ill patients, in whom infection, fever and anxiety increased metabolic demands, so that a direct correlation could not be made between these figures and the need for a respirator in acute ventilatory insufficiency.

Detection of Hypoxia.—Since cyanosis may not be present until arterial oxygen saturations fall to 80 per cent or less,[12] the oxygen content of arterial blood determined either by blood gas analysis or the oximeter provided the only reliable index of low grade hypoxia. With the patient breathing 100 per cent oxygen for at least five minutes, arterial blood was withdrawn for analysis and the oximeter placed on the ear. The oximeter was thus standardized to the patient's degree of oxygen saturation at that time, and future changes in oxygen saturation could be immediately and accurately determined. A drop of more than 5 to 8 per cent in the arterial oxygen saturation when the patient was changed from inhaling 100 per cent oxygen to breathing room air was taken to signify anoxemia.[13] When a patient breathing room air had an oxygen saturation of 94 per cent or less, oxygen therapy was always instituted. Most patients, of course, received oxygen therapy before this degree of anoxemia occurred. Oxygen was delivered at a rate of 4 to 8 liters a minute by nasal catheter. By the use of the oximeter to complement direct arterial blood gas analysis, continuous accurate evaluation of oxygenation was possible. The need for many technically difficult and time-consuming direct blood studies was eliminated.

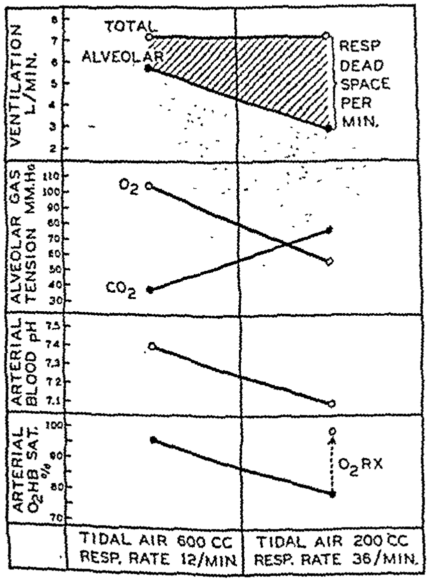

Chart 1.—Mechanism of alveolar carbon dioxide accumulation and blood acidosis in reduced alveolar ventilation. Despite the fact that total ventilation remains constant, alveolar ventilation falls sharply as tidal air decreases and the respiratory rate increases. Carbon dioxide, as a result, is *not eliminated*, and the blood pH shifts to a more acid level. Oxygen therapy corrects anoxemia but does not appreciably affect the accummulation of carbon dioxide.

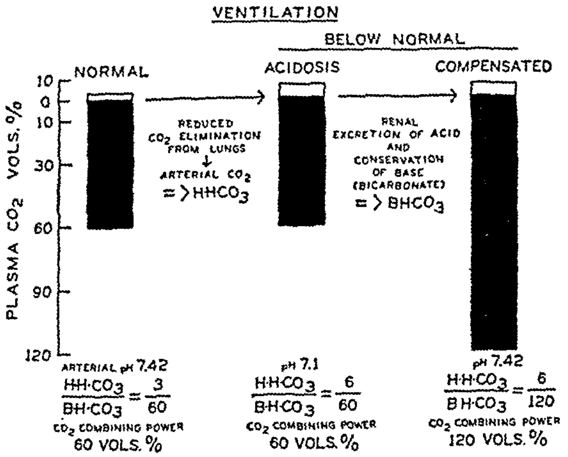

Chart 2.—Mechanism of blood acidosis in carbon dioxide retention, and development of a high venous plasma carbon dioxide-combining power in renal compensation of respiratory acidosis. Increased alveolar carbon dioxide is equal to increased arterial $H.H.CO_3$ (carbonic acid), and the arterial pH falls to 7.1. As the venous plasma carbon dioxide-combining power rises, owing to renal conservation of base, the arterial pH returns to the normal value of 7.42.

Detection of Carbon Dioxide Retention and Its Significance.—The mechanism of carbon dioxide retention in these patients with ventilatory reduction and the effects of this retention on blood pH are diagrammed in chart 1, which hypothetically outlines the course in one of the patients studied. The respiratory dead space (approximately 150 cc.) had to be filled on each inspiration before any fresh gas reached the alveoli, and the dead space remained essentially the same, even though tidal volumes diminished. Therefore, when tidal volumes fell, practically the entire reduction in the amount of air breathed was at the expense of alveolar ventilation. When, as in the example cited in chart 1, tidal volume fell from 600 to 200 cc., the entire 400 cc. of each breath was lost to alveolar gas exchange, and only 50 cc. (i. e., 200 cc. tidal volume minus 150 cc. dead space) of inspired gas flushed the alveoli.

As alveolar ventilation was reduced, oxygen tension fell and carbon dioxide tension rose in the alveoli and therefore in arterial blood. Carbon dioxide, because of its greater molecular weight, diffuses less rapidly than oxygen. Thus, although oxygen therapy raised the alveolar oxygen tension and arterial oxygen saturation to normal levels by replacing inert nitrogen in inspired air, carbon dioxide could be eliminated only by increasing tidal volume or excessively increasing the respiratory rate, thereby increasing alveolar emptying. Since the pH of the blood is dependent largely upon the equilibrium established between free carbonic acid (H_2CO_3) and combined carbonic acid ($BH.CO_3$), as the carbon dioxide retained was converted to carbonic acid, the blood pH shifted to a more acid level (chart 2). This shift in blood pH occurred simultaneously with carbon dioxide retention.

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[11] Whedon, D. S., and Plum, F.: Unpublished data.

[12] Comroe, J. H., and Botello, S.: The Unreliability of Cyanosis in the Recognition of Arterial Anoxemia, Am. J. M. Sc. 214:1, 1947.

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The plasma carbon dioxide-combining power, reflecting, as it does, available base, largely in the form of bicarbonate, for combination with carbonic acid, rose above its normal level of 60 volumes per cent as the kidneys excreted other acid salts and conserved bicarbonate. Thus, in contrast to the usual metabolic acidosis, where carbon dioxide is blown off by the lungs and the carbon dioxide-combining power falls, in the respiratory acidosis due to inadequate carbon dioxide elimination from which these patients suffered the carbon dioxide-combining power was high. Electrolyte acidosis, marked by a high carbon dioxide-combining power and a highly acid pH of the urine, is peculiar to states of reduced ventilation; and since renal compensation is a relatively slow process, blood acidosis persists until the ratio of free carbonic acid to combined carbonic acid is restored at 20:1. This may take several days.

Carbon dioxide-combining powers and urinary pH values were, therefore, followed closely in all patients suspected of ventilatory insufficiency. Arterial carbon dioxide contents were periodically ascertained to determine the exact status of carbon dioxide respiration.

OBSERVATIONS ON USE OF RESPIRATORS

If borderline hypoxia (arterial oxyhemoglobin saturations of 94 per cent or less) or progressive carbon dioxide retention, reflected by venous plasma carbon dioxide-combining powers exceeding 70 per cent, could not be overcome by eliminating respiratory obstruction through suction or tracheotomy,[14] artificial respiration was instituted. In patients with relatively slowly progressing poliomyelitis, small degrees of failure of carbon dioxide elimination, with carbon dioxide-combining powers rising to 65 or 70 per cent, occurred as much as 24 to 36 hours before respiratory insufficiency was severe and could be corrected by increasing ventilation for a few hours with a respirator. It was noted that certain patients who initially had difficulty synchronizing with a respirator and were irrational when first placed in one of these devices became rational and more cooperative when their blood carbon dioxide content returned toward normal.

The Rapid Rocking Bed.—The Fast Rocking Bed [15] had both the rate and the depth of its oscillations controlled and was useful in providing rest periods for five acutely ill patients whose unassisted breathing required maximum effort. By intermittently applying the weight of the viscera to the diaphragm at rates up to 24 per minute, and moving through an arc up to 20 degrees from the horizontal, the bed supplemented reduced breathing and helped maintain gas exchange by creating a bellows action on the thorax. It proved inadequate for continuously ventilating patients with drastically paralyzed respiratory musculature during the acute phase of poliomyelitis. In five accutely ill patients it delayed the need for a respirator several hours and enabled them to come out of the respirator sooner. Use of the rocking bed for more than a few hours at a time during the acute illness was limited to a certain extent by the fact that patients sometimes became nauseated and the constant motion interfered with sleep. The rapid rocking bed proved most valuable and was used most extensively during the period of convalescence from poliomyelitis.[11] During this period its action enabled nine patients with severely paralyzed respiratory musculature and vital capacities as low as 200 to 300 cc. to stay outside negative pressure respirators for many hours. The rapid rocking bed was an aid in weaning patients from respirators and enabled them to receive physical therapy and other treatments early in the course of convalescence.

The Cuirass Respirator.—For at least some patients the type of cuirass respirator studied [16] was safe for only brief periods at a time during the acute stage of respiratory insufficiency.[17] Two acutely ill patients were unable to correct severe carbon dioxide retention and acidosis while in this respirator. The carbon dioxide was eventually eliminated by increasing ventilation with a tank type respirator. Spirometer collections on one of these patients, as well as determinations on three convalescent and control subjects, revealed tidal volumes of only 230 to 410 cc., with negative cuirass respirator pressures up to 20 mm. of mercury. The lower volumes were found for the acutely ill subjects. Despite the failure of elimination of carbon dioxide, the arterial oxygenation, at least for a time, remained above 95 per cent in the two acutely ill patients in the cuirass respirator, and this initially obscured the respiratory decompensation.

Autopsies on three patients for whom the cuirass respirator had been used for periods of four to 24 hours preceding death, revealed moderately severe anterior pulmonary emphysema in all.[17] Studies of lung volume, performed during the eighth month of convalescence, on a fourth patient who had been treated in the cuirass respirator for a month during his acute illness, also revealed the presence of moderately severe pulmonary emphysema.[18]

Tank Type Respirators.—These devices [19] accomplished sufficient ventilation in all the patients studied to achieve adequate oxygenation and carbon dioxide elimination. Negative respirator pressures of 15 cm. of water accomplished effective ventilation in most cases, and physiologically effective tidal volumes of 480 to 720 cc. were observed in five patients studied in these respirators. Other investigators, however, have found that positive pressure breathing, synchronous with negative intratank pressures, must be added to the upper airway to achieve adequate ventilation and correct acidosis in some of their patients with respiratory paralysis.[20]

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[14] (*a*) Galloway, T. C., and Seifert, M. H.: Bulbar Poliomyelitis: Favorable Results in Its Treatment as Problem in Respiratory Obstruction, J. A. M. A. **141:** 1 (Sept. 3) 1949. (*b*) Brown, J. R., and others: Bulbar Form of Poliomyelitis: II. Therapeutic Measures Based on Pathologic and Physiologic Findings, Minnesota Poliomyelitis Research Commission, J. A. M. A. **135:** 425 (Oct. 18) 1947. (*c*) Priest, R. E.; Boies, L. R., and Boltz, N. F.: Tracheotomy in Bulbar Poliomyelitis, Ann. Otol., Rhin. & Laryng. **56:** 250, 1947.

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[16] The Monaghan Portable Respirator, manufactured by the J. J. Monaghan Company, Denver.

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[18] Lukas, D. S., and Plum, F.: Pulmonary Function in Patients Convalescing from Acute Poliomyelitis with Respiratory Paralysis, to be published.

[19] Manufactured by the J. H. Emerson Company, Cambridge, Mass. and Warren E. Collins, Inc., Boston.

Subsequent observations on lung volume and pulmonary function in eight patients treated with the tank respirator have demonstrated that use of the latter was not associated with the severe degree of pulmonary emphysema found in patients treated with the cuirass type.[18]

The tank type respirator, therefore, was found to be the most satisfactory and the safest device available for combating severe insufficiency of breathing, and when its use is combined with positive pressure breathing the ventilation may be even more effective.

SUMMARY

In cases of acute poliomyelitis with ventilatory failure when vital capacities in adults fell below 1,200 cc., repeated venous plasma carbon dioxide-combining powers and arterial blood oxygen saturations were ascertained. In the absence of obstruction, if the venous plasma carbon dioxide-combining power progressively rose above 60 volumes per cent or the arterial oxyhemoglobin content fell below 94 per cent, the respirator was necessary to restore physiologic respiratory gas exchange.

Failure of carbon dioxide elimination by the lungs and increased levels of carbon dioxide in the blood (hypercapnia) were associated with respiratory paralysis in at least four patients who, as shown by arterial blood gas analysis, had oxyhemoglobin saturations of over 95 per cent. Carbon dioxide retention was reflected by rising venous plasma carbon dioxide-combining power with a normal or acid pH of the blood and acid urine. Accumulation of carbon dioxide in the blood, when not corrected by increasing alveolar ventilation, resulted in blood acidosis, was associated with hypertension and narcosis and may have caused cardiovascular collapse.

The tank type respirator achieved physiologically effective ventilation in patients with severely paralyzed breathing mechanisms. The cuirass type portable respirator could not be relied upon to maintain physiologic respiratory exchange. The rapid rocking bed was useful in supplementing respiratory efforts in patients with limited breathing ability.

ABSTRACT OF DISCUSSION

DR. JOE R. BROWN, Rochester, Minn.: The possibility that the retention of carbon dioxide might be of importance in the care of poliomyelitis was mentioned by Pitt at the International Congress on Poliomyelitis in New York. The reverse of this condition was observed at the University of Minnesota Hospitals in the 1946 epidemic, in which some of the tank type respirators produced excessive ventilation, blowing off excessive carbon dioxide and resulting in chemical changes in the blood which were the reverse of those observed by Drs. Plum and Wolff. It is important, therefore, to know that one is getting the correct amount of respiratory exchange, and not just that one has the respirator turned on at the settings which have been approved by the manufacturers. It would appear that both overventilation and underventilation will produce chemical changes within the blood which are deleterious to the patient. The problem of care of patients with poliomyelitis becomes complicated at times, and one hesitates to make any over-all statement. However, it is possible to clarify some of the observations which may be made. One may see inadequate gaseous exchange associated with deficiency of ventilation or deficiency of the alveoli of the lungs. Deficiencies in ventilation are due to paralysis of the diaphragm or intercostal muscles, depression or destruction of the respiratory center in the medulla or obstruction of the upper airway resulting from pharyngeal or laryngeal paralysis. Alveolar deficiency may be the result of pulmonary edema, atelectasis or pneumonia. Patients have to be watched closely for all these factors, and many factors are interdependent. An example is pulmonary edema caused by an obstructed airway. On the other hand, pulmonary edema itself will further obstruct the airway, producing a vicious cycle. In clinical observation of the patient, it is important first to realize that hypoxia alone will usually produce euphoria. This has been observed repeatedly under various experimental conditions in the air forces. However, retention of carbon dioxide produces a different clinical picture. Retention of smaller amounts of carbon dioxide has a stimulating effect; it produces anxiety, restlessness, fearfulness and, many times, a fear of death. If the patient is able to breathe, there will be an increase in the respiratory rate. As retention of carbon dioxide progresses, a depressant effect occurs, leading to a clouded mental state, delirium and coma. Initially there is an increase in the pulse rate and blood pressure, and finally there will be a state of shock. In many patients with poliomyelitis, retention of carbon dioxide is complicated by inadequate oxygenation. In retention of carbon dioxide the administration of oxygen may lead to temporary apnea. This results from removal of the stimulating effect of hypoxia on the respiratory center in the presence of the sedative effect of carbon dioxide. In subacute retention of carbon dioxide the compensated states occur which have been documented so ably by the authors. With hyperventilation the respiratory center itself will adjust to lower quantities of carbon dioxide in the blood, so that the new levels of carbon dioxide will then become the usual and accustomed levels. When such a patient is taken out of the respirator, he will have difficulty in adjusting because he is now accustomed to lower concentrations of carbon dioxide. It may be that with prolonged retention of carbon dioxide partial readjustment of the respiratory center as well will occur.

DR. ROLAND P. MACKAY, Chicago: This paper illustrates well the role which, ideally, should be played by clinical physiology in sharpening our management of neurological cases. It also emphasizes the extent to which the modern neurologist must acquaint himself with physiologic processes which are not usually considered relevant to clinical neurology. The conclusions of Dr. Plum and Dr. Wolff are illuminating. Elevation of arterial carbon dioxide may be instrumental in keeping the patient in delirium or coma, thus prejudicing his changes for survival at a time when oxygen studies suggest that he is in little respiratory difficulty. Since carbon dioxide is the most powerful stimulant of the respiratory center, its excess in the blood makes certain that a patient with bulbar poliomyelitis, whose respiratory center is already damaged by the disease, will be stimulated far beyond the capacity to respond. This is comparable to requiring a patient with a nearly paralyzed leg to exercise violently during the acute stage of the disease. The authors' experience of the great superiority of the tank respirator over the cuirass type accords with my own. The difficulty with patients with acute respiratory insufficiency is primarily a mechanical one and results from the failure of the diaphragm to perform its function and from the failure of the intercostal muscles of respiration. Therefore, it is certainly inadequate to put such a patient in an oxygen tent or to administer oxygen by any other means. The patient is damaged, actually, by carbon dioxide. In many hospitals, careful studies of the type presented in this paper are not possible, laboratory facilities not being at hand. A few simple clinical points may be of help in the management of the patient. One should remember the old clinical Litten sign for the detection of diaphragmatic excursion. If, in a darkened room, a light falls tangentially along the line of the chest, the excursions of the diaphragm may be observed in the indrawing of intercostal spaces. If the diaphragm is paralyzed, the fact may be detected in this fashion, as well as by the paradoxical infalling of the abdominal wall during inspiration. If a patient's carbon dioxide level is high, he will nearly always show some degree of cyanosis. Therefore close attention to the degree of cyanosis present will be of great help. Even small degrees of cyanosis can readily be detected in the lips and other tissues. On the other hand, if a patient in the tank respirator is hyperventilated, alkalosis may develop. In such cases, cyanosis likewise appears. But in a patient not in a respirator any degree of cyanosis is a danger signal and should call for the use of a respirator.

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[20] Bennett, V. R.: Personal communication to the authors.

Dr. Fred Plum, New York: With reference to Dr. Brown's comments on hyperventilation in patients in respirators, I am curious as to whether the hyperventilation he observed was early in the stage of paralysis or later, in the stage of convalescence. Our experience was that hyperventilation was encountered in respirator patients only after they had passed through the acute, prostrating stage of poliomyelitis and were well into convalescence. Mr. Ray Bennett, the respiratory engineer, tells me that this experience was corroborated on a large scale by Dr. Bauer's group in Los Angeles, who encountered fairly severe respiratory acidosis even in patients in tank respirators but did not observe the hyperventilation syndrome except in convalescents. As to the mechanism of action of carbon dioxide on the respiratory center, carbon dioxide is usually used in stimulating amounts of about 5 per cent carbon dioxide to 95 per cent oxygen. If the carbon dioxide concentration is raised to about 10 per cent and the patient or experimental animal continues to breathe this mixture, the respiratory center becomes depressed. A similar phenomenon is present in the patient with pulmonary emphysema, who has chronic carbon dioxide retention. It thus appears that the respiratory center is probably depressed by high carbon dioxide tensions, rather than being exhaustively stimulated by them. In any case, only the carotid bodies provide chemical stimulation of respiration after the respiratory center is gone, and they are stimulated by hypoxemia rather than by high carbon dioxide tensions. The simple tests and the clinical signs which manifest hypoxia and hypercapnia are certainly of the greatest importance. However, we tend to feel that cyanosis cannot be relied on. Dr. Comroe, of Philadelphia, demonstrated the unreliability of cyanosis in the detection of hypoxia. He had a group of clinicians judge patients' arterial oxygen saturations by the degree of cyanosis present and checked these estimations with the oximeter. The correlation was poor, and anoxemia was not consistently manifested by cyanosis until arterial oxygen saturation fell to about 80 per cent. Dr. Brown's co-workers at the University of Minnesota extended studies of this nature to patients with poliomyelitis and by the use of the oximeter demonstrated that the presence or absence of cyanosis was not an accurate index of a patient's oxygenation. The carbon dioxide-consuming power of the blood is simply determined, as is the pH of the urine. Since frequently respiratory decompensation takes 24 to 48 hours to develop, a rising carbon dioxide-combining power and an acid urine would indicate that a patient with respiratory paralysis was not throwing off carbon dioxide and would guide respirator therapy.

ANESTHESIA FOR COMMISSUROTOMY FOR MITRAL STENOSIS

PRELIMINARY REPORT

Kenneth K. Keown, M.D., D. Dwight Grove, M.D.
and
Henry S. Ruth, M.D., Philadelphia

Gibbon,[1] in defining cardiac surgery made the following statements: "Operations upon the human heart have been confined chiefly to the surface or to the walls of the heart. The field of intracardiac surgery on human patients is in its infancy." Because of the increasing employment of intracardiac surgery in human patients, for which our department has been responsible for anesthesia, and because of the increasingly beneficial results obtained by such surgical procedures, it appeared to us that intracardiac surgery held such definite prospects for certain incapacitated patients that its application would increase. Therefore, it was thought that a report on the current methods of anesthetic practices employed by us might be helpful to others who may be called on for this application of anesthesia. This discussion will be limited to anesthesia for commissurotomies in cases of mitral stenosis. Of all surgical procedures on the mitral valve this one has produced the greatest benefit to patients in the hands of our thoracic surgery group.[2] It is possible that intracardiac surgical procedures of other types may be employed more frequently in the future. The current practices of anesthesia may well continue to be satisfactory for all intracardiac operations on adults, but we wish to emphasize that this is a preliminary report. The principles and methods described are the most satisfactory to date for mitral commissurotomies, but we will continue to seek any factor that may show possibilities of increased benefit.

PATHOLOGY OF MITRAL STENOSIS

It has been estimated that from 0.5 to 1.0 per cent of the community is affected where rheumatic fever is endemic, and 85 per cent of these by chronic valvular heart disease.[3] This statement provides the reason for the initial investigation of the effects of surgery on the mitral valve (the valve most frequently involved by the disease). Deformity of the mitral valve may result in major stenotic or regurgitant effects. Once these situations arise, the prognosis is unfavorable in almost every instance. Therefore, "desperate measures seem less desperate" when a condition is recognized as having only a fatal or hopeless outlook, and "with application and courage, not infrequently can be made safe." To this end, we believe, anesthesiologists can contribute.

Without an attempt at oversimplification, the basic lesion and subsequent pathological physiology of rheumatic heart disease in which there is deformity of the

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From the Department of Anesthesiology, Hahnemann Medical College and Hospital.

Read before the Section on Anesthesiology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

[1] Gibbon, J. H., Jr., and Stayman, J. W., Jr.: Symposium on Recent Advances in Surgical Physiology: The Physiology of Cardiac Surgery, S. Clin. North America **29**: 1731-1743 (Dec.) 1949.

[2] (*a*) Bailey, C. P.; Glover, R. P., and O'Neill, T. J. E.: The Surgery of Mitral Stenosis, J. Thoracic Surg. **19**: 16-49 (Jan.) 1950. (*b*) Glover, R. P.; O'Neill, T. J. E., and Bailey, C. P.: Commissurotomy for Mitral Stenosis, Circulation **1**: 329-341 (March) 1950.

[3] White, P. D.: Chronic Valvular Disease, in Cecil, R. L.: Textbook of Medicine, ed. 4, Philadelphia, W. B. Saunders Company, 1937, pp. 1107-1125.

mitral valve, as already stated, should perhaps be further explained as follows: There is fibrosis of the mitral valve with or without regurgitation. When this fibrosis becomes well developed, a rigid slit in a fibrotic plaque replaces the normal mitral valve. This pathological change produces increasing back pressure on the left auricle and the pulmonary circuit, with resultant hypertrophy of the right side of the heart. The high pressures produced result in accidents to the pulmonary circulation or failure of the right side of the heart or both.

DEFINITION OF COMMISSUROTOMY

When the usually encountered consequences of mitral disease are considered, it is not surprising that as early as 1902, Brunton,[4] an internist, suggested the possibility of a direct surgical attack on the mitral valve. Digital dilatation of the stenotic mitral valve was performed by Souttar in 1925, with success in one case.[5] At our institution digital dilatation, since termed finger fracturing of the mitral orifice, was performed in three cases, with one success. The first patient was operated on on June 12, 1946 [2a]; death within 72 hours was shown at necropsy to have been caused by clotting at the torn commissures.

Systolic Pressure Within the Auricle During Surgery

	Pressure in Left Auricle, Mm. Hg *	
Patient	Before Commissurotomy	After Commissurotomy
J. B.	45.1/30.3	14.5/2.6
E. W.	35.8/16.5	6.9/1.3
V. S.	30.2/16.0	22.1/7.5
G. B.	45.5/7.8	39.0/6.5

* Pressures recorded by Lilly manometer.

During the postmortem examination, the possibility of cutting the mitral valve commissure into flexible tissues just beyond the fibrotic structures was first considered. This procedure, defined as "commissurotomy" as a result of a suggestion by Durant, is a procedure designed to reestablish a considerable degree of normal valvular function, as compared with procedures substituting regurgitation for stenosis. The method has been adequately described, and the description will not be repeated here. When correctly performed, it relieves the tremendous back pressures resulting from the stenosis, with excellent return of valvular function. As an illustration: By means of cardiac catheterization at the time of the surgical procedure, immediately before cutting of the valve, in one patient the preoperative systolic pressure in millimeters of mercury in the left auricle was reduced by commissurotomy from 45.1 to 14.5, while the diastolic pressure in the left auricle was reduced from 30.3 to 2.6. Fifty patients have been subjected to commissurotomy; eight did not recover.[5a] One patient recovered from the operation and was progressing satisfactorily six months later, when she died as a result of an upper respiratory tract infection and bronchopneumonia.

SELECTION OF CASES

The cases in which a surgical procedure is to be performed are carefully studied and selected. Fluoroscopy is done, electrocardiographic tracings and phonographic recordings are made and circulation time and venous pressures are determined. Catheterization of the right heart and pulmonary artery is important. Patients are studied by a cardiologist, who takes into consideration preoperative pressure readings from the pulmonary arteries and right ventricle and auricle in contemplating results. Ballistocardiograms and studies of cardiac output also are of value.

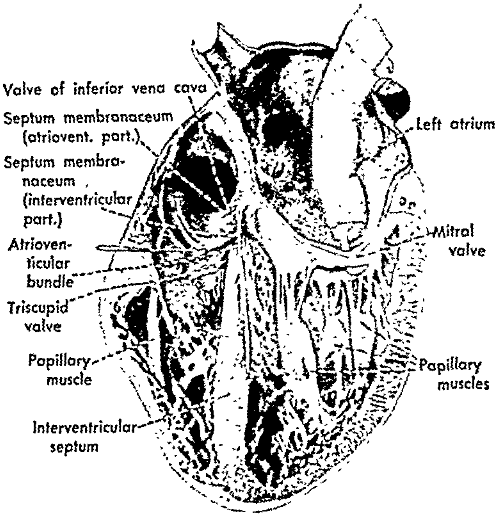

Fig. 1.—Commissurotomy knife on finger, showing method of cutting the mitral valve.

We believe that the most favorable group consists of those patients with mitral disease who have excessive fatigability and increasing exertional dyspnea—but no active rheumatic disease—and whose sinus rhythm is normal, in whom the lesion is predominantly stenotic and in whom there is evidence of significantly increased pulmonary hypertension.

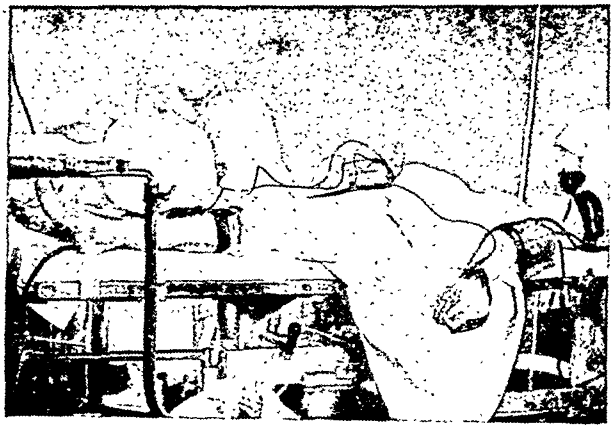

Fig. 2.—Equipment for electrocardiographic tracings in place, patient ready for induction of anesthesia.

A less favorable group, but one for whom surgical intervention is not necessarily contraindicated, consists of those patients who have the symptoms cited above plus recurrent bouts of hemoptysis arterial embolic phenomena and auricular fibrillation without failure. At the present time, the presence of auricular fibrillation is not considered a contraindication to the procedure.

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[4] Brunton, L.: Preliminary Note on the Possibility of Treating Mitral Stenosis by Surgical Methods, Lancet 1:352, 1902.

[5] Souttar, H. S.: The Surgical Treatment of Mitral Stenosis, Brit. M. J. 2:603-606 (Oct. 3) 1925.

[5a] Since this presentation was made, 116 commissurotomies were performed prior to Jan. 1, 1951, with 14 fatalities. From Jan. 1, 1951, to April 1, 1951, 16 were performed with 6 fatalities.

Surgical intervention, however, is not instituted in the presence of active rheumatic infections, superimposed subacute bacterial endocarditis, cardiac failure uncontrollable by medical means, or marked associated mitral regurgitation or other valvular (aortic) deformities.[2a]

In addition, before a surgical procedure is advised, any previous infarction should be proved to be healed. Patients who are in failure or on the verge of failure are given digitalis both before and after operation. Early in our series of operations it had been customary to employ quinidine sulfate to counteract the irritability of the heart. In one case it appeared to us that there was a synergistic effect between the quinidine sulfate and our method of anesthesiologic care, which so reduced the irritability of the heart that when cardiac arrest occurred cardiac contraction could not be reestablished. Since that one experience, although our department of pharmacology has not been able to duplicate our suspected summation of the effects of quinidine sulfate and procaine, neither quinidine nor any other agent has been employed for that purpose, with the exception of procaine.

PREANESTHETIC PREPARATION

The preanesthetic preparation, medication and anesthesiologic care are directed toward (1) decreasing the irritability of the heart, (2) lessening any factors such as nausea, vomiting, coughing or straining that may be present just before, during or in the immediate postoperative period, because of their effect on increasing pulmonary hypertension with edema, and (3) increasing the already restricted vital capacity of the patient.

PRELIMINARY MEDICATION

Preliminary medication is aimed toward having the patient rested and the metabolic rate as nearly normal as possible without depression. Pentobarbital (nembutal®), 0.10 to 0.20 Gm. (1½ to 3 grains), or secobarbital (seconal®) sodium in the same dosage is prescribed the night before operation. From an hour to an hour and a half before anesthesia, 0.10 Gm. of pentobarbital (1½ grains) is given by mouth, and meperidine (demerol®) hydrochloride, 75 to 150 mg., with atropine sulfate, 0.60 mg., (1/100 grain) are given intramuscularly. Shortly after administration of these drugs a vein in the lower extremities, usually the anterior tibial vein, is cannulated under infiltration anesthesia.

MANAGEMENT OF THE PATIENT IN OPERATING ROOM

After the patient is brought to the operating room, absolute quiet is essential. The equipment for making electrocardiographic tracings and determinations of blood pressure is applied after the patient has been placed in a supine position on the operating room table.

Thirty minutes before induction of anesthesia, a solution of 0.2 per cent procaine in 5 per cent dextrose and distilled water is administered intravenously in the operating room. From 350 to 750 mg. of procaine is given before intubation is carried out. As a result of administration of this combination of drugs, our patients are calm and have received sufficient procaine to obviate the majority of extrinsically caused cardiac irregularities. Usually some slowing of the heart rate can be demonstrated. In addition, procaine, so administered and continued, produces a degree of analgesia beneficial to the patient.

At the time of the preanesthetic examination, and again before anesthesia is induced, an attempt is made to explain the steps of the procedure of which the patient may be aware during operation. This includes the curare-like action of decamethonium bromide (syncurine®). Decamethonium bromide in doses varying from 1 to 4 mg. is administered intravenously until the patient experiences difficulty in opening and closing his eyelids. Thiopental (pentothal®) sodium is then given intravenously in dosages sufficient to produce hypnosis (250 mg. or more). By this time, approximately 350 mg. or more of procaine has been given. A Magill endotracheal catheter is passed under direct vision by the oral route. With this method we have rarely seen a patient "buck" or fight the introduction of an endotracheal tube. A mixture of 50 per cent nitrous oxide and 50 per cent oxygen is administered from the time the patient loses consciousness. During all steps apnea is avoided with its ensuing, although temporary, hypoxia. Whenever indicated, respiratory function is augmented to assure adequate pulmonary ventilation with both adequate oxygen delivery and carbon dioxide elimination. Administration of nitrous oxide and oxygen in this concentration is continued until the left auricular appendage is opened by the surgeon, when 100 per cent oxygen is administered. Procaine is continued at the same concentration of 0.2 per cent, with a basic flow of 1 Gm. per hour. Thiopental sodium is added as required for basal hypnosis. We believe that analgesia and anesthesia result from the combination of procaine, nitrous oxide and thiopental anesthetics.

Fig. 3.—Anesthetized patient ready for draping.

Continuous or semicontinuous electrocardiograms are taken during the surgical procedure. All surgical activities are interrupted if ventricular tachycardias appear, as determined either by electrocardiographic means or directed vision, because we believe that if a ventricular tachycardia is allowed to persist for a longer period than from eight to 10 or slightly more contractions, ventricular fibrillation may occur. With cessation of manipulation, normal cardiac rhythm is usually restored. It is particularly dangerous to overload the cardiovascular system with fluids that easily produce pulmonary edema, especially in these cases. Solutions of sodium chloride are not employed because of their well known effect in this respect, as well as the possibility of oliguria occurring after operations. Whole blood is administered as indicated. From the viewpoint of anesthesiology, we whole-heartedly advocate the physiological rectification of hypotension brought about by shock, in contradistinction to pharmacologic treatment of the condition by means of drugs. Usually but little blood is lost, because of the present perfection of surgical technic.

At the completion of intracardiac manipulation, the rate of flow of procaine is decreased. Usually thiopental sodium need not be added after the approximation of the chest wall has been started. We attempt to have these patients awake, moving and responsive at the completion of surgery.

We have been alarmed by symptoms produced by a change of position, such as elevation of a shoulder, during the operative procedure. In such cases the heart could conceivably be further dislocated once the procedure is initiated. For this reason, we attempt to avoid any change of position once the pericardium has been opened.

POSTANESTHETIC MANAGEMENT

Immediately after operation, a thorough tracheobronchial toilet is performed, and if superficial reflexes have returned, as is the usual experience, extubation is carried out. If the blood pressure and pulse rate are stable, the venous cannula is removed in order to avoid a temptation to administer excessive intravenous fluids. If pulmonary edema is present, oxygen under positive pressure is administered until there is no further evidence of this complication. Administration of oxygen is continued by means of nasal catheter for varying periods. A limited fluid intake is prescribed. Sedative drugs may be given, but depressants should be avoided. The patient is usually ambulatory in from three to five days.

SUMMARY

A preliminary report on the anesthesiologic management of 50 cases of mitral commissurotomy is presented.

ABSTRACT OF DISCUSSION

Dr. Lloyd H. Mousel, Seattle: Dr. Ruth and his associates have had an exceptional opportunity in the development of anesthetic methods for this new intracardiac surgical procedure. Dr. William Derrick at the Peter Bent Brigham Hospital has had the opportunity of anesthetizing a substantial group of patients for mitral valvuloplasty. All patients in his group were considered exceedingly poor risks, many of them having been entirely bedfast for periods of six months to four years prior to operation, and many of them having had acute bouts of cardiac failure and pulmonary edema. Derrick states that the development of preoperative tachycardia has given them great concern. In several patients tachycardia and pulmonary edema, due probably to increased pulmonary hypertension, developed on the day before operation had been scheduled. He attributed this condition to the apprehension in the patient. Following their early experience of having to postpone surgical intervention because of right heart failure, he has "stolen" the patient by the intravenous administration of thiopental (pentothal®) sodium, given in the patient's room. Following the thiopental injection, ether has been used as the main anesthetic agent. One patient was anesthetized successfully with ethylene and oxygen. Derrick has not used the intravenous administration of procaine routinely, withholding it for use in 20 to 40 mg. doses in those cases where cardiac arrhythmias are noted on the continuous electrocardiographic tracings. In all of his patients the pericardial sac has been flooded with a 1 per cent solution of procaine as soon as it has been opened. No mention has been made, in either Derrick's or Ruth's report, of myocardial infiltration. This procedure was first used by Horace Smithy, and later by Blades, Blalock, Bailey and others. Apparently the myocardium can be infiltrated safely prior to the placement of a purse-string suture around the area to be incised. Local anesthesia in this area tends to prevent arrhythmias from extrinsic stimulation. A 1 or 2 per cent procaine solution is not of adequate strength to reduce myocardial irritability. I would recommend that a 5 per cent solution be used in the pericardium, and that the heart be allowed to swim in this solution for several minutes before the incision is made in the auricular appendage. In patients with mitral stenosis pulmonary hypertension develops. If intrapulmonic pressures are increased above the patient's compensated level, right heart failure may be expected. This possibility should be borne in mind in all anesthetic management. Working with dogs, Pierpont, Blades and I found that controlled and supported respiration increased pressures within the pulmonary arteries and right ventricle greatly above normal levels. It seems possible that controlled respiration or too vigorous supported respiration in patients with mitral stenosis might increase pulmonary hypertension to such an extent that right heart failure with pulmonary edema could develop in a short period of time. The same condition might result from the application of positive pressure oxygen or air in an attempt to treat pulmonary edema in patients who have pulmonary hypertension. We know too little regarding the hemodynamics of pulmonary and cardiac circulation during our positive pressure and controlled respiratory manipulations. A great amount of research in the physiology of circulation needs to be done soon, in order that our anesthesia improvements can keep pace with the newer developments in intracardiac surgery.

Dr. W. O. McQuiston, Peoria, Ill.: The results reported by Dr. Ruth and his associates are spectacular. The patients in this series could by no stretch of the imagination be considered even fair anesthetic risks. Commissurotomy in the adult is a much more difficult and dangerous procedure than commissurotomy or valvulotomy in the child, just as division of a patent ductus or excision of a coarctation of the aorta in the adult is a much more formidable procedure than the same operation in the child. Since I have had no experience with intracardiac surgery in the adult, it would be presumptuous, and possibly dangerous, to suggest that the relatively simple anesthetic technique that we have used successfully for intracardiac surgery in children might also be adequate for the adult. However, in children, at least, other agents and techniques may be used. We attempt to reduce the metabolism without respiratory depression, by administering relatively large doses of morphine and scopolamine or atropine preoperatively. Morphine has always been our favorite sedative drug for cardiac patients, and we wonder if Dr. Ruth uses meperidine (demerol®) hydrochloride for intracardiac surgery because of its spasmolytic action, and if he prefers it to morphine for all types of cardiac patients. We have used cyclopropane for all our intracardiac surgery as well as for exploration inside the pericardium. After the pericardial sac is opened, 1 per cent solution of procaine is poured into the sac, bathing the heart with procaine for at least five minutes before the heart is opened or handled. Arryhthmia has not been noted. By means of this technique four patients—23 days, 2 months, 11 months, and 10 years of age—have undergone pulmonary vavulotomy with no mortality, and several children have undergone extensive intrapericardial explorations. Adequate pulmonary ventilation with an atmosphere rich in oxygen has been stressed by Dr. Ruth. After experience with over 500 patients undergoing cardiac surgery, it is my clinical impression that oxygenation is the most important factor in preventing cardiac disturbances. We feel that unassisted or occasionally assisted respiration when the chest is opened may result in inadequate pulmonary ventilation, and we therefore use controlled respiration on all patients. The danger of overloading the cardiovascular system with fluids cannot be overemphasized. With too much fluids pulmonary edema and/or cardiac decompensation may occur. We administer a 50 per cent dextrose solution intravenously if edema occurs, and digitalize the patient with one of the drugs for intravenous administration if cardiac decompensation occurs.

Dr. Henry S. Ruth, Philadelphia: Emphasis should be placed on the fact that we not only have used the method presented to you, which is the method of anesthesia management we employ at the present time, but have also employed ethyl ether, cyclopropane and other drugs. In our hands, at least, these agents did not provide as satisfactory results. Instillations of the higher percentages of procaine in the pericardium after it has been opened and after the injection of the auricular appendage, were not called to your attention because they are performed by the surgeon, and limitations of time prevented us from discussing any portion of the surgical management in great detail. I do not believe that Dr. Mousel's criticism of oxygen administered under pressure applies to our use of it in the manner reported. If you will recall, oxygen under pressure for the treatment of pulmonary edema was listed under postanesthesiological care. It is to be remembered, too, that the pressure in the pulmonary circuit is relieved by commissurotomy. Therefore, no greater precautions in the utilization of oxygen under pressure appear to be indicated here than elsewhere. Lastly, to answer a question by Dr. McQuiston: We are using meperidine (demerol®) hydrochloride for spasmolytic effect, and, also, because we believe less nausea and vomiting follow its use. Any bouts of postoperative nausea and vomiting are, of course, not well tolerated in these patients.

HYPERTHYROIDISM WITHOUT APPARENT HYPERMETABOLISM

Sidney C. Werner, M.D.
and
Howard Hamilton, M.D., New York

A recent study in this clinic of the newer laboratory technics for appraising thyroid function [1] has revealed several points of interest. First, the evaluation of a single function of the gland, such as the ability to take up radioiodine [2] or to maintain the level of precipitable iodine in the serum,[3] does not always reflect the over-all activity of the gland. Second, the appraisal of several functions of the thyroid has not overcome this difficulty. The determination of the levels of both radioiodine tracer uptake and serum precipitable iodine chemically, or of tracer uptake and basal metabolic rate, provides, with about 95 per cent accuracy, a reflection of gland activity, but it is still not pathognomonic of either hyperthyroidism or hypothyroidism. Third, despite this limitation, the use of the newer technics has permitted the characterization of a hitherto poorly recognized group of patients who have hyperthyroidism but no apparent concurrent elevation of basal metabolic rate.

An analysis of the data from 15 such patients seen at the Presbyterian Hospital in the past year is the subject of the present report. There are several of the 15 patients in whom the clinical picture was induced during radioiodine therapy for hyperthyroidism.[4] As a consequence, we had considerable difficulty in establishing whether control over toxicity was in part or was entirely achieved.

The concept that hyperthyroidism may occur without ostensible hypermetabolism has received sporadic attention in the literature.[5] However, these papers have not won acceptance of the entity by all clinics. The well known difficulties in clinical differentiation between hyperthyroidism and anxiety or other psychoneurotic states [5e] has made for skepticism toward a diagnosis, which has to be made in the face of lack of support from the laboratory. Swenson and Curtis [6] most recently have been interested in the problem. They studied diffuse and nodular goiter and noted a group of patients with normal basal metabolic rates, but with elevation of the serum iodine level. They postulated that these patients might have toxicity from goiter. Soisalo, however, in a similar series could not entirely concur with this interpretation on the basis of a more detailed iodine tolerance test.[7] Moreover, the relatively high incidence of elevated values of serum iodine in euthyroid subjects proved not to have hyperthyroidism [8] makes difficult the acceptance of this test as a final diagnostic criterion for the individual patient.

In order to avoid question, a definite response to therapy has been required in the present study, in addition to laboratory evidence from the radioiodine tracer, serum precipitable iodine and basal metabolic rate determinations, before a final diagnosis of hyperthyroidism without apparent hypermetabolism has been accepted.

METHODS

All patients were seen either in the hospital or in the thyroid clinic by one of us (S. C. W.). Adequate follow-up has been possible after initiation of therapy in all but one patient. This patient's data have been included in the tables since there is little doubt as to the correctness of the diagnosis.

From the Department of Medicine, College of Physicians and Surgeons, Columbia University, and the Presbyterian Hospital.

Read before the Section on Internal Medicine at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

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[1] Werner, S. C.; Hamilton, H. B.; Leifer, E., and Goodwin, L. D.: An Appraisal of the Radioiodine Tracer Technic as a Clinical Procedure in the Diagnosis of Thyroid Disorders: Uptake Measurement Directly over the Gland and a Note on the Use of Thyrotropin (T. S. H.), J. Clin. Endocrinol. **10**: 1054, 1950.

[2] (*a*) McArthur, J. W.; Rawson, R. W.; Fluharty, R. G., and Means, J. H.: The Urinary Excretion of Radioactive Iodine as an Aid in the Diagnosis of Hyperthyroidism, Ann. Int. Med. **29**: 229, 1948. (*b*) Stanley, M. M., and Astwood, E. B.: The Accumulation of Radioactive Iodine by the Thyroid Gland in Normal and Thyrotoxic Subjects and the Effect of Thiocyanate on Its Discharge, Endocrinology **42**: 107, 1948. (*c*) Werner, S. C.; Quimby, E. H., and Schmidt, C.: The Use of Tracer Doses of Radioactive Iodine, I^{131}, *in the Study* of Normal and Disordered Thyroid Function in Man, J. Clin. Endocrinol. **9**: 342, 1949. (*d*) Keating, F. R., Jr., and others: The Measurement of the Iodine-Accumulating Function of the Human Thyroid Gland, J. Clin. Investigation **28**: 217, 1949.

[3] (*a*) Salter, W. B.; *Karandikar, G., and Block, P.: Organic and* Inorganic Iodine: Their Reciprocal Metabolic Fates, J. Clin. Endocrinol. **9**: 1080, 1949. (*b*) Riggs, D. S., and Man, E. B.: A Permanganate Acid Ashing Micromethod for Iodine Determinations: Values in Blood of Normal Subjects, J. Biol. Chem. **134**: 193, 1940. (*c*) Barker, S. B.: Determination of Protein-Bound Iodine, J. Biol. Chem. **173**: 715, 1948. (*d*) *Starr*, P., and others: Clinical Experience with Blood Protein-Bound Iodine Determinations as Routine Procedure, J. Clin. Endocrinol. **10**: 1237, 1950. (*e*) Connor, A. C.; Curtis, G. M., and Swenson, N. E.: A Simplified Method for the Determination of the Protein-Bound Blood Iodine and Its Clinical Application, J. Clin. Endocrinol. **9**: 1185, 1949.

Customary clinical and laboratory procedures have been employed to establish a diagnosis and evaluate the results of treatment. Basal metabolic rate determinations were performed in the routine basal metabolism laboratory with the use of a Benedict-Roth apparatus. Two or three readings of five minutes each were made after the usual 30 minutes of bed rest. Spirograms were reviewed and considered satisfactory in all patients listed except one with a habit spasm, champing of the jaws.

TABLE 1.—*Previous Treatment for Hyperthyroidism*

Therapy	Group 1	Group 2
No previous treatment	6	1
Chronic antithyroid drug	2	1
Operation	2	0
Radioiodine	4*	0
Roentgen	1	0

* Of the four patients under radioiodine therapy, one had not been operated on previously, and three had had recurrence of hyperthyroidism after operation.

TABLE 2.—*Initial Symptoms*

	Group 1		Group 2	
Symptom	No. Positive	No. Tested	No. Positive	No. Tested
Weight loss	11	15	1	2
Nervousness	11	15	1	2
Fatigability	8	14	2	2
Palpitation	8	13	0	1
Sweating, heat sensitivity	4	11	0	1
Diarrhea	2	7	0	1
Eyes	0	15	0	2

The uptake of radioiodine was measured directly over the gland 24 hours after the ingestion of 40 microcuries of I^{131}, as previously described.[9] The chemical determination of precipitable iodine in the serum was done by the method of Barker.[3c] The determination of serum cholesterol was done with the patient in the fasting state by the method of Bloor.[10] The inherent inaccuracy of the method is recognized, but experience indicates that rising levels usually represent clinical improvement.

TABLE 3.—*Initial Physical Signs*

	Group 1		Group 2	
Physical Sign	No. Positive	No. Tested	No. Positive	No. Tested
Pulse rate *	15	15	2	2
Tremor	8	13	1	2
Coarse	4	..	0	..
Fine	4	..	1	..
Palms "hothouse"	8	14	1	2
Thyroid enlargement	10	15	1	2
0	5	..	1	..
+	5	..	1	..
++	3	..	0	..
+++	2	..	0	..
++++	0	..	0	..
Exophthalmos	0	15	0	2

* Pulse rate in group 1 ranged from 86 to 120 per minute. Pulse rate in group 2 was 100.

The result of a trial period of administration of a sedative or sodium iodide was observed in several instances for confirmation of the clinical impression. Definitive therapy was undertaken with radioiodine in six instances, propylthiouracil in five and surgical intervention in one. Sodium iodide alone was given in two. No treatment was possible in the one patient lost to follow-up. Of the two patients thought not to have hyperthyroidism, one received roentgen therapy, and the other antithyroid drug in the same dosage as the other patients. There was no response in either instance.

RESULTS

Clinical Observations.—The history and physical examination of each of the 15 patients considered to have hyperthyroidism (group 1) has been analyzed (tables 1, 2 and 3). There are 13 women and two men, whose ages range from 21 to 61 years. Two additional patients thought not to have toxic goiter because of lack of response to therapy (group 2) are included in the tables to emphasize the inherent error in reliance on laboratory findings alone. Their ages were 34 and 63 years, respectively.

A clinical suspicion of hyperthyroidism was present in almost every instance prior to investigation. Nevertheless, the symptom picture was equally consistent with the manifestations of a neurosis, such as anxiety state or neurocirculatory asthenia. As a result, there was generally no uniformity of opinion as to the diagnosis among the several experienced clinicians first seeing a given patient before the reports from the laboratory were received. The most consistent symptoms elicited in the history (table 2) were nervousness in 11 of the 15 patients, weight loss with good appetite in 10, palpitations and fatigability in eight each.

TABLE 4.—*Response of Body Weight to Treatment*

	Weight Gain	
Group	Average, Lbs.	Range, Lbs.
1	7	3-14
2	+1, −1	+1, −1

The one consistent finding on physical examination (table 3) was tachycardia, noted in all 15 patients, with pulse rates between 86 and 120 per minute. Warm moist palms were noted in eight. A readily palpable gland was observed in five patients. The gland was barely palpable in five and was impalpable in the other five. Tremor of the extended hands was present in nine patients, fine in character in five of these and coarse in the other four. No tremor was apparent in four, while the observation was not made in one. Weight gain (table 4) and subsidence of symptoms and signs were noted in response to treatment in all the patients diagnosed as having hyperthy-

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4. Werner, S. C.; Quimby, E. H., and Schmidt, C.: Radioactive Iodine, I-131, in the Treatment of Hyperthyroidism, Am. J. Med. **7**: 731, 1949.

5. (*a*) Miller, J. L., and Raulston, B. O.: Recognition of Mild Hyperthyroidism, J. A. M. A. **79**: 1509 (Oct. 28) 1922. (*b*) Ball, F. E.: Thyrotoxicosis with a Normal Metabolism Early in the Course of the Disease, M. Clin. North America **14**: 1277, 1931. (*c*) Smith, P. S.: Mild Hyperthyroidism and the Neuroses, Ann. Int. Med. **4**: 1460, 1931. (*d*) Gordon, S., and Graham, R. R.: Clinical Hyperthyroidism Associated with Normal Basal Metabolic Rate, Canad. M. A. J. **32**: 162, 1935. (*e*) Martin, L.: Autonomic Imbalance and Borderline States of Thyrotoxicosis, Proc. Roy. Soc. Med. **32**: 1424, 1939. (*f*) Perkin, H. J., and Cattell, R. B.: Value of Blood Iodine Estimations in Diagnosis of Borderline Hyperthyroidism, West. J. Surg. **48**: 50, 1940.

6. Swenson, R. E., and Curtis, G. M.: The Differentiation of Incipient Hyperthyroidism, J. Lab. & Clin. Med. **32**: 1413, 1947. Swenson, R. E., and Curtis, G .M.: The Increased Protein Bound Blood Iodine in Patients with Hyperthyroidism, J. Clin. Endocrinol. **8**: 934, 1948.

7. Soisalo, P.: Blood Iodine and Thyroid Function: A Study of 254 Cases, Acta med. Scandinav. **133**: 186, 1949.

8. Salter, Karandikar and Block.[3a] Connor, Curtis and Swenson.[3e]

9. Werner, S. C.; Quimby, E. H., and Schmidt, C.: Clinical Experience in Diagnosis and Treatment of Thyroid Disorders with Radioactive Iodine (Eight Day Half-Life), Radiology **51**: 564, 1948.

10. Bloor, W. R.: .The Determination of Cholesterol in Blood, J. Biol. Chem. **29**: 437, 1917.

roidism except in the one patient not adequately followed, of whom proper observation was not possible.

Laboratory Findings.—The levels of tracer uptake and serum precipitable iodine chemically are abnormally high in the patients presented in this report, since this has been a requirement for diagnosis (table 5). The results of the basal metabolic rate determination before definitive treatment range from + 1 per cent to + 16 per cent, with an average of + 11 per cent.

There is only one basal metabolic rate value of + 16 per cent; nine of the remaining fall between + 10 per cent and + 15 per cent and five between ± 0 per cent and + 10 per cent. The selection of + 15 per cent as the upper limit of normal for the basal metabolic rate is based on the fact that in this laboratory, approximately 25 per cent of concurrently tested and proved euthyroid patients have basal values in excess of + 10 per cent and about 15 per cent in excess of + 15 per cent.[1] Thus distinction between thyroid overactivity and anxiety or hypertension on the basis of a basal metabolic rate determination in the + 10 per cent to + 15 per cent range is virtually impossible from this evidence alone.

The highest level of radioiodine tracer uptake for the hyperthyroid group presented herein is 77 per cent uptake at 24 hours. There are nine uptake values greater than 50 per cent at 24 hours, five values between 40 and 49 per cent and one value of 38 per cent. Over-all experience with the method reveals practically no incidence of uptake greater than 50 per cent at 24 hours in euthyroid subjects, although 10 per cent of patients without known thyroid disturbance take up 40-50 per cent of the tracer dose at 24 hours.[1]

Table 5.—*Laboratory Values Before and After Treatment*

	BMR, %		Cholesterol, Mg./100 Cc.		Radioiodine Uptake, % at 24 Hr.		S.P.I., Gamma/100 Cc.	
	Before	After	Before	After	Before	After	Before	After
Group 1								
Average	+ 11	6	176	234	55	..	13.1	7.2
Range	+ 1-+ 16	— 18-+ 8	111-249	181-371	38-77	..	9.3-25.9	5.6-8.9
Group 2								
Range	— 20-± 0	— 18-+ 3	153-199	238	60	30	9.3- 9.8	...

Serum precipitable iodine levels in the hyperthyroid group range between 8.4 and 25.9 gamma per 100 cc. The average for the series before treatment is 13.1 gamma per 100 cc. The upper limit of normal for the method is considered as 8 gamma per 100 cc. It is generally agreed that about 5-10 per cent of serum iodine values may exceed 8 gamma per 100 cc. in apparently euthyroid subjects, often by a considerable margin.

The values for fasting serum cholesterol are listed in table 5. There is no definite trend indicated by the results. The normal range by the method used is approximately 150-250 mg. per 100 cc.

Treatment of hyperthyroidism in these patients is followed by a definite fall in basal metabolic rate, a return of the serum precipitable iodine level toward normal and a slight rise in serum cholesterol. The correlation between tracer uptake and hormone release may be disrupted by therapy [2c] so that this test was not followed after treatment.

COMMENT

The concept that hyperthyroidism may exist without apparent elevation of basal metabolic rate appears to have been confirmed. This statement applies to the basal rate determination as done routinely in the laboratory and has not been subjected to verification by special technics. These persons mainly have been classified in the past as neurotic or hypertensive on the basis of the relatively normal result of the basal metabolic rate determination. The introduction of the radioiodine tracer test has made it relatively simple to screen out for further study [11] those patients with elevated uptake. Confirmation of possible hyperthyroidism should then be sought by the serum precipitable iodine and basal metabolic rate determinations. However, even with support from the laboratory data, it must be emphasized again that further documentation of the possibility of toxicity from goiter must be found in a favorable result from therapy before the diagnosis can be said to be complete.

There is real danger that innumerable patients with neuroses, anxiety state, hypertensive disease or some extraneous disorder may be treated for hyperthyroidism if reliance is not placed on all these criteria. In case of doubt as to the ultimate result to be expected from treatment, information frequently may be gained by the administration of sodium iodide for a two week period.[12] A favorable response to the drug is indicated by weight gain, by amelioration of toxicity and often by some decrease in basal metabolic rate. Serum precipitable iodine values tend to decrease under the influence of sodium iodide. A return of toxicity should follow discontinuance of sodium iodide.

The production of hyperthyroidism without elevation of basal metabolic rate after incompletely successful radioiodine therapy of toxic goiter (table 1) is of interest in terms of the mechanism of action of radioiodine. It appears likely that a quantitative reduction of functional thyroid tissue accounts for the remission induced by this treatment, rather than that a physiopathologic process is interrupted. It is also apparent that the clinician must be alert to the possibility of this type of borderline toxicity when control over toxicity is not quite complete after forms of therapy for hyperthyroidism other than radioiodine. A basal metabolic rate between ± 0 per cent and

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[11] Werner, S. C.; Goodwin, L. D., and Quimby, E. H.: The Tracer Technique with Radioiodine, I^{131}, as a Potential Substitute for the Basal Metabolic Rate Determination in Routine Clinical Practice, abstracted, J. Clin. Endocrinol. **9:** 664, 1949. Werner, S. C.; Quimby, E. H.; Goodwin, L. C., and Schmidt, C.: Some Results from the Use of Radioiodine, I^{131}, in the Diagnosis and Treatment of Toxic Goiter, Am. J. Roentgenol. **63:** 889, 1950.

[12] Means, J. H.: The Thyroid and Its Diseases, ed. 2, Philadelphia, J. B. Lippincott Company, 1948, p. 378.

+ 15 per cent cannot be relied on too heavily as an indication that complete remission from toxicity has been obtained.

SUMMARY

Hyperthyroidism without apparent hypermetabolism has been observed in 15 patients at the Presbyterian Hospital within the past year. It has been required for the diagnosis that the values for both radioiodine uptake and serum precipitable iodine chemically determined be elevated and that there be a satisfactory response to therapy subsequently. It is stressed that these rigid criteria must be maintained if needless treatment of countless neurotic and hypertensive patients is to be avoided. The clinical picture and laboratory findings in this group are summarized. Two additional patients are reported with laboratory findings consistent with the diagnosis of hyperthyroidism but with lack of response to treatment.

ABSTRACT OF DISCUSSION

Dr. M. Paul Starr, Pasadena, Calif.: It is no surprise to me that this excellent paper by Dr. Werner points out that there are some persons with hyperthyroidism who have a basal metabolism within the normal range. With regard to the rate of uptake of radioactive iodine, which I also have studied, I think that it measures the activity of the thyroid gland in its relation to the metabolism of iodine and does not have much to do with whether or not the patient has hyperthyroidism. From the experiences I have had in being consulted with regard to radioactive iodine, I would like to have the profession realize that it is no more pathognomonic or diagnostic than other laboratory methods; in fact, the uptake, I feel, is rather unreliable as a diagnostic procedure. The basal metabolic rate test is unreliable because it is nonspecific, since it measures the total oxygen found in the body, which is influenced by many things that are not directly dependent on the thyroid hormone. On the other hand, it seems to me that the protein-bound iodine, which measures the level of the thyroid hormone in the blood, is the most reliable diagnostic method. One trouble in this whole discussion is that none of us is clear about what hyperthyroidism is, and since we cannot define what we mean by the disease, it is a little hard to decide what is the best diagnostic test for the disease. In one sense, we are studying the thyroid too much; whereas we should think of the disease as a failure of homeostasis. Dr. Means suggested this several years ago. The condition we are thinking of as Graves' disease or hyperthyroidism is a failure in some response to stress. We all have stresses. The patient with hyperthyroidism, however, cannot get back to normal. The patient's history and complaints are a poor guide to whether or not he has the disease. Dr. Mayo Soley laid down a dictum sometime ago which I think was to the point, i. e., that many patients with hyperthyroidism cannot tell you whether or not they have hyperthyroidism until they have been relieved of the hyperthyroidism; in other words, they have to return to a euthyroid state and homeostasis must be restored before they can think properly about their previous condition and then realize that they were sick. In our hands, the use of the chemical measurement of the protein-bound blood iodine is the most reliable method of diagnosis of hyperthyroidism. I would like to emphasize the chemical determination of the disease in this case just as one uses the chemical determination in diabetes. The experience in the Diabetic Association throughout the country has been that there are many people who have diabetes without knowing that they have it, but that it is demonstrated by the chemical determination of excess sugar. I believe that the same thing is true of hyperthyroidism with relation to excess thyroid hormone iodine.

Dr. Edward D. Robbins, Chicago: Ever since the introduction of clinical calorimetry, there has been a regrettable tendency to identify the basal metabolic rate more or less exactly with the function of the thyroid. But it is known that this gland contributes at most 40 per cent to the total basal metabolic rate, that many morbid processes other than thyroid disease affect the basal metabolic rate and that the basal metabolic rate may deviate considerably from so-called "normal" without thyroid dysfunction being present. Hyperthyroidism, hypermetabolism, hypometabolism and perhaps even hypothyroidism may exist as independent variables. It is common knowledge that a large number of nonmetabolic diseases, e. g., pheochromocytoma and leukemia, may produce states of hypermetabolism without hyperthyroidism. Drs. Werner and Hamilton have described cases of hyperthyroidism without hypermetabolism. There is excellent evidence that most patients with low basal metabolic rates but without myxedema have hypometabolism but not hypothyroidism. Further, many patients with undernutrition and anorexia nervosa have low basal metabolic rates without hypofunction of the thyroid. There may be one rather obvious explanation for the six cases in this report that had no previous treatment. The normal distribution curve for the basal metabolic determinations on patients without metabolic disease is a gaussian one, and while 95 per cent of patients fall between —18 per cent and + 22 per cent, 2½ per cent of these patients have basal metabolic rates below —18 per cent. When a euthyroid person whose basal metabolic rate is normally —20 per cent develops hyperfunction of the thyroid gland sufficient to raise his basal metabolic rate 30 points, it is then + 10, which is still within the so-called "normal" range. There are some reservations which must be borne in mind when one interprets data from thyroid uptake studies with I^{131}: First, Salter has emphasized that to measure the turnover rate of iodide to hormonal iodine, which is what we are really interested in, one must make simultaneous measurements of isotope and stable element. Second, when one measures the total isotope content by an external counter, one measures the avidity of the gland for iodine, but not the turnover rate of iodide to hormonal iodine. It is possible that cases of high isotope uptake after partial destruction of the gland by radioiodine or subtotal thyroidectomy are caused by hyperplasia of the remnant of the gland and/or by decrease in total body iodine which results from loss of part of the thyroid gland with its stored iodine.

Dr. Earle M. Chapman, Boston: As a member of Dr. Mean's clinic, I want to say that we have seen recent cases of this kind. We recently studied two such cases thoroughly for comparative data. One of these women was treated for what was called rheumatoid arthritis for a period of two years, and we presented her in our clinic, where it was agreed she was not thyrotoxic and yet her uptake of radioiodine was 90 per cent and her protein-bound iodine was up about 12 to 13 micrograms. We have not yet undertaken therapy with her. We had another similar case, and in all, I think we will be able to collect about eight or 10 such cases now in our clinic.

The Quality of Medical Care.—In these stormy and controversial days, much is being said about problems, real or imagined, in the general area of medicine as they relate themselves to society at large. Particularly do we hear about difficulties in the quantity and distribution of medical care, and in the economic mechanism of the provision of adequate medical care. The factors of quantity and economics have tended to obscure far too often the basic fact that the existence of medical care and the ability to buy it are essentially in vain if the care is not of the highest quality. The research laboratories have put into the hands of the practitioners of medicine in all fields, tools which are in a sense double-edged swords. When applied with skill to a medical problem, these tools can be of enormous diagnostic and therapeutic good. When applied carelessly and without complete knowledge, these tools may reap havoc. Therefore, it is incumbent on everyone who concerns himself with medicine increasingly to orient his actions and thinking toward programs designed to deliver to the American people not only adequate amounts of medical care at a price which the people can pay but, perhaps above all else, medical care of the very highest quality.—Franklin D. Murphy, M.D., Postgraduate Education with Reference to Anesthesia, *Anesthesiology*, January 1951.

NASOPHARYNGEAL IRRADIATION

RELATIVE MERITS OF ROENTGEN AND RADIUM THERAPY FOR BENIGN CONDITIONS

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and
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For many years irradiation has proved to be of considerable benefit in cases of hyperplasia of the lymphoid tissue in the nasopharynx. What are the actual results of treatment in clinical practice? What is the most effective method of irradiation? In an attempt to answer these questions we have reviewed our results in several hundred cases and have summarized the relative physical effectiveness of the two commonly applied methods of irradiation.

ANATOMIC CONSIDERATIONS

In adults the eustachian tubes are about 3.6 cm. in length and the orifices usually 4 cm. apart. The bony portion of the eustachian tube comprises the outer third; it joins the cartilaginous portion at the isthmus, or narrowest part of the tube. The size of the tube increases as it reaches its pharyngeal end. Normally the walls in its mesial half are apposed; its ostium is vertical and slitlike except when forced open by muscular action or positive pressure. The nasopharyngeal orifices of the tubes are surrounded above and behind by the torus tubarius, a prominent bulge composed of cartilage covered by mucosa. Above and behind the torus, is the fossa of Rosenmüller, which is lined with lymph follicles and lymphoid tissue. On the roof and upper posterior wall of the nasopharynx lies the adenoid. Although there is one central area of attachment, it may be very extensive and extend into the fossa of Rosenmüller and even over the torus tubarius. There is no well defined tissue or capsule separating the adenoid from the superior constrictor muscle.

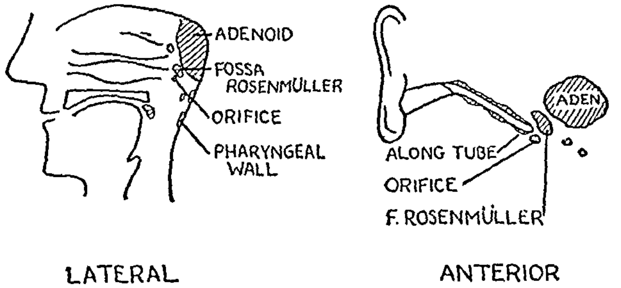

Fig. 1.—Diagrams showing location of pathological changes in benign nasopharyngeal lymphoid hyperplasia. Note the location of shaded areas of hyperplastic lymphoid tissue, especially those along each eustachian tube; the latter deposits develop with repeated or chronic infection.

Scattered superficial bands of lymphoid tissue lie on the posterior and lateral walls of the pharynx and nasopharynx. Both the lateral bands and the scattered nodules are more developed in the upper part of the nasopharynx and less developed inferiorly. This tissue is normally about 2 mm. thick. Farrior,[1] Wolff, Teutleben and Zollner have shown that lymphoid tissue is absent in and about normal tubes. In the presence of acute and chronic infection lymphoid tissue may occure anywhere along the tube and even in the middle ear. The lymphoid tissue is most prominent at the pharyngeal end of each tube, where it is sometimes called the tubal, or Gerlach's, tonsil. The mucous membrane lining of the tympanic cavities and eustachian tubes is continuous with that of the nasopharynx. The pharyngeal ostium acts as a flutter valve, allowing escape of air under pressure from the middle ear but preventing passage of air into the middle ear.

PATHOLOGIC CONSIDERATIONS

The lymphoid tissue comprising Waldeyer's ring is normally "thick" or "hypertrophic" in childhood. About the time of puberty it begins to atrophy, except in cases of infection, when it persists with or without scar tissue formation. With repeated infections, adhesions may form from the adenoids to the torus. The close association of this lymphatic tissue to the nose, sinuses and eustachian tubes seems to be a factor in frequent infection.

The normal air exchange between the middle ear and the nasopharynx is extremely slow. The normal tube does not open with each act of swallowing and may remain closed for long periods of time each day. With edema or hyperplasia of the lymphoid tissue in the eustachian tubes or around their orifices there is blockage, which, if prolonged, leads to changes in the middle ear. Deafness may result by mechanical block or compression of the pharyngeal end of the tube (fig. 1).

In chronic or repeated infections there are hypertrophy of the lymphoid tissue and inflammatory changes that may apparently act as a focus of infection for subsequent development of sinusitis or otitis. Patients may show a granular pharyngitis or mucus hypersecretion. Aviators with lymphoid hyperplasia may get on well until a cold develops with consequent edema of the lymphoid tissue and excess mucus formation; this blocks the eustachian tube, leading to aero-otitis.

There are various stages of aero-otitis, and if the air pressure is increasing, the pressure in the middle ear and nasopharynx must be equalized and the tube opened by means of its muscles, or a definite sequence of events follows. With a difference of 3 to 5 mm. pressure of mercury (at sea level) "fulness" develops in the ears; at 15 to 30 mm. there are discomfort and diminished hearing; above 30 mm. there may be pain, tinnitus, bleeding, vertigo and nausea; at 80 to 90 mm., great pain and exacerbation of all the other findings. When the air pressure in the tube is greatly decreased the veins in its wall will expand and may rupture, with blood and serum filling the middle ear.[2]

Once fluid has formed, its complete replacement by air takes about two weeks even when normal tubal function is maintained. Prolonged tubal obstruction, with or with-

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Read before the Section on Radiology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

[1] Farrior, J. B.: Histopathological Considerations in Treatment of the Eustachian Tube, Arch. Otolaryng. 37:609 (May) 1943.

[2] Shilling, C. W., and others: Prevention and Treatment of Aerotitis Media, U. S. Nav. M. Bull. 46:1529 (Oct.) 1946.

out exudative catarrh, may produce temporary or irreversible changes in the conduction mechanism. As Crowe[3] and others have pointed out, it is not alone the presence of the lymphoid tissue in the nasopharynx but also its localization at or near the tubal orifices that is important in deafness.

After infection, the torus tubarius shows marked inflammatory changes, particularly around the anterior lip where the mucosa is not bound firmly to the underlying structures. The inflammation may obliterate the orifice completely. Adenoid tissue may reach obstructive proportions. The posterior tips of the inferior turbinates are frequently edematous and show polypoid changes, and although they do not influence the tubes per se, they indicate associated inflammatory conditions. Since there is no clinical means of determining the presence or absence of lymphoid infiltration of the tubal wall beyond the torus, one may reasonably infer its presence when there is generalized lymphoid infiltration of the pharyngeal walls, torus and fossae. Farrior has illustrated the detailed histopathological changes of chronic infection.[1]

SYMPTOMATOLOGY

This brief review of pathological changes presages the wide variety of clinical findings one may encounter in these patients. There may be diffuse inflammation or thickening of the mucous membrane, with excess mucous discharge and postnasal drip. The patients have frequent colds, sore throats, sinusitis and catarrhal otitis; the crypts in the lymphoid tissue are said to be favorable locations for the common cold virus and the bacteria of upper respiratory tract infections. There are stuffiness and fulness in the ears and nose. Buzzing and roaring in the ears are common. There may be intermittent deafness, often improved in the summer months. Progressive deafness, beginning with the highest tones (above 8,000 double vibrations) may develop in patients with chronic eustachian tube block. During World War II aero-otitis (or barotrauma) was of considerable import among Air Force and submarine personnel.[4] Aero-otitis is characterized by middle ear lesions caused by failure to equalize pressure between the middle ear and the surrounding atmosphere. Effects of altitude on the middle ear have long been recognized but recently have been of greater concern because of increased commercial and military aviation. Patients suffering from this condition have otalgia, fulness in the ears, tinnitus and recurrent discharge. The pain in some cases is reported to be so great that there are associated vertigo, nausea and vomiting. The drum may be hemorrhagic and retracted and in severe cases may rupture. With a less severe process, there is reddening along the handle of the malleus and the periphery of the drum, as in beginning otitis. With relatively negative pressure due to oxygen absorption, a transudative fluid appears in the middle ear (serous catarrh) or there is gross bleeding.

TREATMENT

The treatment of choice in hyperplasia of the lymphoid tissue is radiation therapy, since this hyperplastic tissue is not amenable to surgery. This therapy can be applied either by external or intraoral use of roentgen rays or by local nasopharyngeal application of radium. Jarvis, in 1923, first reported on the use of nasopharyngeal roentgen therapy for patients with congested ears. Crowe has been using radium or radon applicators for lymphoid hyperplasia since 1924, and during the recent war radium was used extensively in the medical departments of the Air Force and Navy.

Radium Therapy.—The radium applications are carried out after local anesthesia. The holder is inserted along the floor of the nose to the region of the eustachian tube orifice, so that the radium centers on the orifice and does not enter it. There are a number of different types of holders[5] for the radium, and the one now in common use is made of monel metal, with a wall thickness of 0.3 mm. monel. The active length is 15 mm. and the outside diameter 2.3 mm. Each holder contains 50 mg. of radium. The holders are usually left in place 12 minutes, giving 600 mg. minutes of radiation to each side. This container gives beta as well as gamma rays (fig. 2).

Measurement of the precise amount of radiation emanating from the radium applicator is difficult, and different sets of figures are obtained from the literature. Fowler[6] and Quimby give the roentgens obtained with 50 mg. of radium, using various filters and times (table 1). At the surface of the monel metal applicator the beta rays predominate, while after passing through 1 cm. of tissue the radiation is virtually all gamma. Ionization measurements close to the applicator record the summation of beta and gamma ray "roentgens"; at a distance of about 1 cm. they record the gamma ray roentgens, the beta having been absorbed.

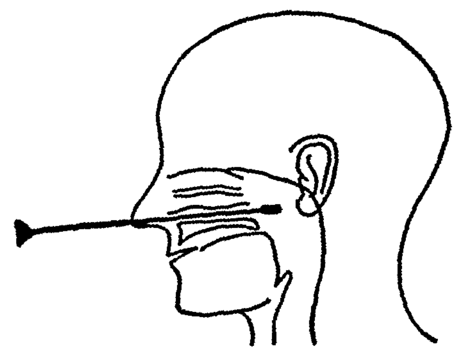

Fig. 2.—Diagram showing usual method of radium treatment. Two standard containers, each with 50 mg. of radium in monel shells 0.3 mm. thick and 15 mm. in length, are inserted following application of local anesthesia. An attempt is made to slide the applicators into place so that the centers of each applicator overlie a eustachian tube orifice. Treatment time is usually 12 minutes. Three treatments are given at two week intervals.

Fowler also gives the estimated tissue dose in roentgens at various depths in tissue from the surface of a standard monel metal applicator, as determined by Quimby (table 2).

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[3] (*a*) Crowe, S. J., in Jackson and Jackson: Diseases of Nose, Throat and Ear, Philadelphia, W. B. Saunders Company, 1945, p. 166; (*b*) Irradiation of Nasopharynx, Ann. Otol., Rhin. & Laryng. **46**: 779 (Dec.) 1946; (*c*) Crowe, S. J., and Baylor, J. W.: Prevention of Deafness, J. A. M. A. **112**: 585 (Feb. 18) 1939.

[4] (*a*) Hendricks, J. E., and others: Use of Radium in Aero-otitis Control Program of the Army Air Forces: Combined Report by the Officers Participating, Ann. Otol., Rhin. & Laryng. **54**: 649 (Dec.) 1945; (*b*) Northington, P.: Radium Therapy in Otitis Media, U. S. Nav. M. Bull. **46**: 1559 (Oct.) 1946; (*c*) Shilling and others.[2]

[5] (*a*) Crowe.[3a] (*b*) Proctor, D. F.: Radiation Therapy for Removal of Adenoid Tissue, Arch. Otolaryng. **45**: 40 (Jan.) 1947.

[6] Fowler, E. P., Jr.: Irradiation of the Eustachian Tube, Arch. Otolaryng. **43**: 1 (Jan.) 1946; Eustachian Tube Irradiation, New York State J. Med. **49**: 187 (Jan.) 1949.

Carl Braestrup[7] constructed a series of cylindrical ionization chambers of polystyrene with the inner walls coated with aquadag to make them conducting. By the use of various chambers the air spacing was varied from a few millimeters down to 0.25 mm. Measurements were also made after the rays had passed through tissue-equivalent absorbers. The results obtained by two different measuring systems varied within a few per cent (table 3).

Quimby's and Braestrup's figures, obtained independently, are in close agreement and, in view of their careful work, are believed to be the most accurate available.

In the nasopharynx the space between the tube orifices is 4 cm. and the eustachian tubes are approximately 3.6 cm. in length. Table 4 shows the radium dosage in roentgens at various points in the nasopharynx and tubes.

It has been shown by the above tables that there is a tremendous "fall off" in the roentgens delivered at short distances from the containers. Extremely large doses are given to the eustachian orifices with proportionately little radiation reaching all the other lymphoid tissue in the nasopharynx, the tubes and the middle ear. No other nonmalignant condition is given such heavy radiation. Further, as Fowler observes, "The exact dose in each case varies, since the apparatus lies at different distances from the tissue in different persons." Radium, as generally employed, is therefore potentially useful in control of localized lymphoid hyperplasia but not for the usual patient having aero-otitis with deafness, who has generalized lymphoid hyperplasia.

Table 1.—*Depth Doses in Roentgens Around 50 Mg. Radium Tubes with Various Filters (Quimby)*

		Distance from Applicator								
		1 Mm.			1 Cm.			2 Cm.		
Filter	Type of Ray	6⅔ Min.	40 Min.	60 Min.	6⅔ Min.	40 Min.	60 Min.	6⅔ Min.	40 Min.	60 Min.
0.5 Mm. Platinum	Gamma	.....	1,500	2,250	..	265	400	..	70	100
1 Mm. Brass	8% Beta	.....	1,800	.....	..	300	...	..	70	100
0.3 Mm. Monel	75% Beta	1,520	.....	.....	55	...	...	15	..	...

Severe epithelitis may result from the above dosages (Fowler). One of us (L. H. G.) has been informed of three patients with radiation ulcers in the posterior nasopharynx from such use of radium. Robbins and Schultz[8] note that erythema on the skin of the forearm has been seen following as little as about 700 r in a single dose. In a benign condition an erythema dose usually should not be exceeded. In acute infections radium should be employed with extreme caution; if not deferred, the dose should be cut in half.

Hendricks' group in the Air Force[4a] treated 6,881 men with 14,045 applications of radium and noted no burns or ulcerations, using eight and one-half minutes, two or three times. He states, however, "Throughout the entire project the rapid shifting of flying personnel made follow-up studies extremely difficult."

The usual precautions for handling and storing radium must be used. Braestrup calculated the dosage received by the operator and estimated that the treating of three patients a week would result in the tolerance dose to the skin of the hands.

Roentgen Therapy.—We believe that the simplest and safest method of irradiation of lymphoid tissue in the nasopharynx is the use of roentgen rays externally. The only "disadvantage," if it can be called such, is that there must be four to six treatments rather than three and that these usually necessitate attendance at a roentgenologist's office or department.

No anesthesia is required. The treatment can be given easily to children. We have treated most of the patients in the age group 1 to 4 without restraints, after the child finds that the initial treatment is painless. We have not had to discontinue treatment because of noncooperation. The great advantage of roentgen therapy over radium is that the whole lymphoid-bearing area of the nasopharynx is included in the field. Thus the entire tubes are treated as well as the adenoids, the fossa of Rosenmüller and the scattered lymphoid deposits on the nasopharyngeal walls. Further, the dose is relatively homogeneous in comparison with the exceedingly uneven dose around the radium tubes. Centering can be accurate and easily duplicated.

Roentgen ray treatment usually consists of the use of medium or high voltage beams 140 to 200 kvp, with a half-value layer of 0.3 to 1.0 mm. Cu. The field sizes in the literature vary considerably and range from a 5 cm. circle to 10 by 15 cm. fields. The distance also varies but is usually 40 cm. Treatments range from 75 to 150 r each and from three to six in number (fig. 3). We have found 140 kvp with a half-value layer of 9 mm. Al. to be entirely satisfactory, although we often treat patients with 200 kvp and a half-value layer of 1 mm. Cu. The field size should be small enough to avoid dryness of the mouth but adequate to cover all the involved area. We employ a vertical field 6 by 7 cm. in size. Usually six treatments of 100 to 150 r air to each side are given at weekly intervals. The patient is immobilized in lateral position and the fields centered carefully 1 to 2 cm. anterior to the inferior border of the tragus (this is approximately over the temporomandibular joint).

The average adult skull measures 14 cm. in width at the level of the nasopharynx; the eustachian tube orifices are 5 cm. deep. The variations in skin and tissue dosage in roentgens at the orifices and midline are compared in table 5, using beams of various half-value layers and giving 100 air r to each side with a 50 square cm. field.

It is thus seen that half-value layer 1 mm. Cu. is the most efficient of the three beams but that there is little difference between employing half-value layer 9 mm. Al. and half-value layer 1 mm. Cu. With these doses the treatment time is short and the skin dose well below the erythema dose. No late skin changes have been noted during a period of 20 years, and no permanent loss of facial hair. No changes have been seen or reported in the temporomandibular joint.

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[7] Braestrup, C. B.: Measurements of the Radiation Dose from the Nasopharynx Radium Beta—Gamma Ray Applicator, read before the Radiological Society of North America, Cleveland, December 6, 1949.

[8] Robbins, L. L., and Schulz, M. D.: Potential Hazards from Radiation Treatment of Hypertrophied Lymphoid Tissue in Nasopharynx, Laryngoscope 59:147 (Feb.) 1949.

RESULTS OF TREATMENT AS REPORTED IN THE LITERATURE

Radium Therapy.—Because of the variation in radium and roentgen ray dosage in the literature and variations in presenting complaints, the published results are difficult to compare. These results would have to be analyzed separately for each presenting sign or symptom to be significant. From a multiplicity of reports we present the following results as fairly representative:

Fowler [6] found that, of 66 Air Force personnel, 69 per cent obtained relief of aero-otitis after radium treatments. Shilling [2] reports over 90 per cent improvement in aero-otitis media. He used three to eight radium treatments of eight to 10 minutes each.

Proctor, Polvogt and Crowe [9] report on radium therapy results in 835 patients followed two and one-half to 15 years:

Of 128 treated because of frequent severe colds, 40 per cent showed marked improvement.

Of 110 with postnasal drip due to nasopharyngeal infection, 25 per cent had complete relief, and 75 per cent were improved.

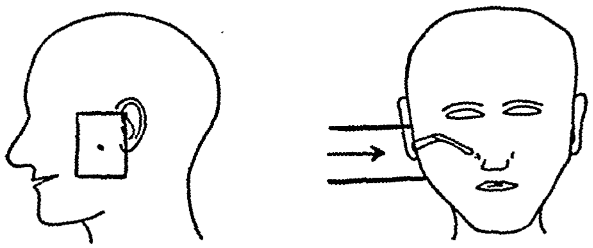

Fig. 3.—Diagram showing authors' method of roentgen treatment. The patient's head is placed in true lateral position. Fields 6 by 7 cm., with the long axis vertical, are centered 1 to 2 cm. anterior to the inferior border of the tragus. Irradiation is given with medium or high voltage beams (half-value layer 9 mm. Al. or 1 mm. Cu.). Doses of 100 to 150 r, measured in air, are given to each side of the nasopharynx, weekly, for six treatments.

Of 282 with impaired hearing attributable to obstructed eustachian tubes, 85 per cent had "great and lasting" improvement.

Of 112 with complaints thought to be attributable to a focus of infection in the nasopharynx, 90 per cent were improved.

Of 87 with partial nasal obstruction due to adenoid tissue, 90 per cent were completely relieved and the other 10 per cent improved.

Of 97 with tinnitus, only three had relief, and, of nine with fulness in the ears, eight were relieved.

A report of the results of radium treatment of the nasopharynx in asthmatic patients is given, among others, by Cohen and Fisher,[10] who consider radium an auxiliary to other types of asthmatic treatment. Proctor and Crowe found improvement in children with bronchial asthma when the asthma was on an infectious basis.

Hendricks [4a] reports on results in the Army Air Force's use of radium for aero-otitis. Because of rapid shifting of flying personnel, follow-up was difficult. Of 575 patients who received two treatments, approximately 65 per cent had objective improvement, and of 778 who received three treatments, approximately 90 per cent had objective improvement. Subjectively, there was a wide variation in the percentage improved, depending on the complaint. Collins, in the same report, found 78 per cent subjective and 94.6 per cent objective improvement 30 days after the third radium treatment in his group of 230 men. The results of the other co-authors in this symposium are similar to those just quoted.

TABLE 2.—*Depth Doses in Roentgens Around 50 Mg. Radium, in Standard Monel Metal Applicator (Fowler & Quimby)*

	Distance from Applicator			
Time, Min.	1 Mm.	2 Mm.	10 Mm.	30 Mm.
8.5	1,940	1,150	42	5
12	2,740	1,620	60	7

TABLE 3.—*Depth Doses in Roentgens Around 50 Mg. Radium in Standard Monel Metal Applicator (Braestrup)*

Depth, Mm.	1 Min.	12 Min. 1 Treatment	36 Min. 3 Treatments
Surface	370	4,450	13,350
0.5	225	2,700	8,100
1	168	2,020	6,050
2	96	1,152	3,460
5	23	276	830
10	5	60	180
20	1.3	14.4	43

Roentgen Therapy.—Rossitto [11] employed roentgen therapy at 200 kvp and half-value layer of 1 mm. copper. The field sizes varied and usually included both the nasopharynx and tonsillar regions. He gave 60 to 125 r to each side four to six times and obtained "90 per cent good results" in children with tonsillitis, sore throat, mouth breathing, nasal obstruction, otitic complaints and, in some cases, asthma. He judged his results in the relief of symptoms by questioning patients and referring physicians.

TABLE 4.—*50 Mg. Radium in Standard Monel Metal Container in Each Posterior Nasopharynx (Using Braestrup's Figures)*

Time, Min.	Dose at Each Tube Orifice	Dose 1 Cm. up Tube	Dose at Midline	Dose 2 Cm. up Tube	Dose 3 Cm. up Tube
12	4,450 r	60 r	28.8 r	14.4 r	7 r
36	13,350 r	180 r	86 r	43 r	21 r

TABLE 5.—*100 Air r Each Side to 50 Square Cm. Field at 40 Cm. Focus-Skin Distance*

KVP	Filter	Half-Value Layer	Skin Dose (Including Exit)	Depth Dose at Each Orifice	Depth Dose at Midline
120	3 mm. Al.	4 Al.	139 r	74 r	66 r
140	0.25 Cu.	9 Al.	147 r	100 r	96 r
200	0.50 Cu.	1 Cu.	148 r	104 r	100 r

Reeves [12] used 100 kv. and 3 mm. Al., filtered, giving 100 r to each side weekly, four to six times. He finds that "Roentgen therapy gives results when all other methods have failed."

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9. Proctor, D. F.; Polvogt, L. M., and Crowe, S. J.: Irradiation of Lymphoid Tissue in Diseases of Upper Respiratory Tract, Bull. Johns Hopkins Hosp. **83**: 383 (Nov.) 1948.

10. Cohen, V. L., and Fisher, J.: Evaluation of Radium Treatment to the Nasopharynx in Asthmatic Children, J. Allergy **20**: 328 (Sept.) 1949.

11. Rossitto, A. F.: Roentgen Treatment of Infection of Tonsils and Postpharyngeal Lymphoid Tissue in Children, Radiology **48**: 118 (Feb.) 1947.

12. Reeves, R. J.: Radiation Treatment of Hypertrophied Lymphoid Tissue of Pharynx and Nasopharynx, Am. J. Roentgenol. **37**: 510 (April) 1937.

Young and Woutat [13] give the results on 116 patients treated for deafness resulting from eustachian tube obstruction by lymphoid tissue. Results were determined by tuning fork tests, ability of the patient to hear the whispered voice and periodic audiograms in all patients old enough to cooperate. Of 63 patients under 15, 72 per cent had significant improvement or return to normal hearing, 17 per cent, partial improvement and 11 per cent, no response. In 53 patients over 15, 49 per cent had noticeable improvement or return to normal hearing, 23 per cent, partial improvement and 28 per cent, no response. Of 36 with chronic otitis, about 61 per cent were healed.

Results of Roentgen Therapy.—We have treated 720 patients for lymphoid hyperplasia in the nasopharynx with the technic as given above. These were, in the main, patients previously untreated, but a few were included who had had unsuccessful radium treatments or in whom radium could not be inserted due to their being uncooperative. All patients were referred by otolaryngologists or general practitioners and suffered from one or more of the usual complaints. The evaluation of results in these patients was made by the patients and/or the referring physicians, who frequently checked progress with audiograms and direct nasopharyngeal observation.

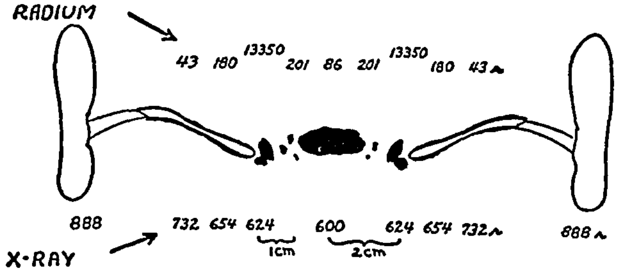

Fig. 4.—Diagram showing the comparative doses of irradiation applied to the pharyngeal and tubal areas during a full course of treatment with radium or roentgen rays. The upper row of figures gives the dose in roentgens received with three applications of radium as specified in the text. The lower row of figures gives the dose in roentgens using roentgen beams as described in the text. Note that much more homogeneous irradiation is obtained with roentgen rays and that the dose at the tubal orifices is excessive with radium.

One of the referring otolaryngologists had been using radium for five years and then had discontinued it in favor of roentgen rays because "Radium gave only localized shrinking of hyperplastic tissue and left the bulk of the lymphoid nodules unchanged." With roentgen rays he noted that about 55 per cent of his adult patients with deafness secondary to hyperplastic lymphoid tissue around the eustachian orifices were cured with a single course. In the remaining 45 per cent "Sufficient lymphoid tissue remained to cause persistent signs or symptoms." Some of these were referred for a second course with good results. His opinion is that almost one half of the adult patients with the complaint of deafness require heavier roentgen dosage than is usually employed to eradicate all the lymph nodules. He has found, over a period of years, that roentgen rays give more satisfactory results than do radium rays, presumably because of their more even distribution of ionization. Another referring otolaryngologist found that approximately 90 per cent of his patients were symptom free after a single course of roentgen therapy. Many of these patients, however, were children and presented a variety of complaints besides deafness.

In our entire series 60 to 90 per cent were relieved of presenting signs or symptoms by the first course of roentgen treatment; the rest had partial or no relief of symptoms. About 5 per cent of the patients returned for additional irradiation, with resultant improvement.

RELATIVE MERITS OF ROENTGEN AND RADIUM THERAPY

Crowe observes, regarding roentgen treatment:

> "Since approximately one-half of the rays delivered at the skin surface are absorbed by neck tissues before they reach the nasopharynx, it is evident that several portals must be used in order to prevent skin irritation. The fact that a large percentage is absorbed necessitates a dosage on the skin surface much larger than is necessary to correct the lesion in the nasopharynx for which the treatment is given. This excessive dosage subjects the centers of ossification for the growing bones of the face and skull to a large amount of radiation which may do harm in a child and is of no value in the treatment of the primary condition in the nasopharynx. Furthermore, it is difficult to maintain young children in a position for accurate cross-firing for the duration of the treatment . . ."

If this paragraph is analyzed, it brings out several interesting points and indicates why roentgen, not radium, therapy is actually advised by many otolaryngologists. In the first place, the use of "several portals" is not necessary; two portals will deliver a satisfactory amount of radiation to all the involved tissues and not merely to the eustachian orifices, as is done with radium. With proper choice of beam, there will be no skin or soft tissue damage (fig. 4).

Comparison of the charts giving the distribution of energy around radium tubes and those for the distribution of roentgen rays shows the tremendous "drop off" in the dosage from the former, so that at 1 cm. there is very little radiation (fig. 4). Since the two eustachian tubes total 7.2 cm. in length and the space between them measures 4 cm., the area of potential lymphoid tissue involvement measures 11.2 cm. in width. This entire zone should be irradiated.

Most of the articles on the use of radium caution against roentgen rays because of "damage to the normal tissues traversed in using external beams." Actually, we have been able to find no reports of damage from roentgen therapy in the doses specified, after an extensive search for such in the literature. We are firmly convinced that in the use of the method we describe there is no danger either to the skin, the underlying soft tissues or the bones. With second courses there may be temporary tanning of the skin.

Ashbury [14] employs 800 to 1,200 tissue r in four to five weeks and has found no side effects. Much larger doses have been used over growing epiphyses without damaging growth in other locations, for other conditions. Not only have thousands of children been treated for lymphoid hyperplasia but many more for epilation of the scalp for ringworm, and no cases of damage to growing bone or to the pituitary gland from moderate dosage have been reported.

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[13] Young, N. A., and Woutat, D. H.: Treatment of Certain Types of Deafness by Roentgen Ray Therapy, Ann. Otol., Rhin. & Laryng. 57: 984 (Dec.) 1948.

[14] Ashbury, H. H.: Radiation Therapy of Lymphoid Tissue in Nasopharynx and Pharynx, Radiology 43: 250 (Sept.) 1944.

It has been stated that external roentgen radiation causes severe dryness of the mouth. Actually, dryness occurs only with the use of large fields, which involve the salivary glands; these are rarely employed. Since irradiation of the involved tissue may be done with small beams, large fields are not required in the average case. Seedorf and McKay[15] note the occurrence of roentgen parotitis for one to two days after the first treatment, but they use 10 by 10 cm. fields, which, of course, cover a large portion of the parotid. If the lymphoid tissue lying on the posterior oropharyngeal wall or the tonsils are to be included in the ionizing beam, a 5 by 8 or 5 by 10 cm. field should be used, but for cases with the hyperplasia limited to the eustachian areas and nasopharynx, a 6 by 7 cm. field, accurately centered, is all that is necessary; with such fields temporary parotid swelling rarely ensues.

Uhlmann and associates[16] and Schenck[17] have reported microscopic studies made on tonsils and hyperplastic lymphoid tissue removed at various intervals following termination of roentgen and radium treatment; no unwarranted effects secondary to radiation were produced and no changes noted indicating any adverse effects on the tissues. The qualitative histological changes in tissue are identical with comparable doses of filtered roentgen rays or radium rays.

Schenck notes that, prior to radiation, great variety in the cellular structure of the lymphoid tissue is found, and, because of this caution should be observed in interpreting single specimens. The initial changes noted were essentially those of chronic infection and chronic inflammation. After irradiation by radium and roentgen rays, Schenck took serial biopsies at two week, four week and six month intervals. The least change was edema of the follicular structures without desquamation or karyolysis. The maximum finding was swelling of the epithelial cells, with vacuolation and small hemorrhages. There was destruction of endothelial cells. Detachment of ciliated cells was not uncommon. The adult lymphocytes showed little alteration, but the young lymphocytes showed nuclear disturbance or dissolution. The most pronounced changes were in the germinal centers, with liquefaction of many of the cells. Examination after six months showed beginning regeneration, with reappearance of lymphocytes. The germinal centers had not reappeared. There was diminution of fibrous tissue. Often there was no evidence of chronic inflammatory changes.

As to the clinical results of irradiation, it has certainly been shown in thousands of cases that either roentgen or radium therapy can be satisfactory. The dose of radium rays in gamma roentgens must be larger than the corresponding dose of roentgen rays in roentgens to produce similar clinical and histological changes in lymphoid tissue. It must be remembered that the results of irradiation are never immediate but that the changes occur slowly after treatment of one to three months.

Radium Therapy.—The advantage of radium therapy is that it can often be done in the otolaryngologist's office in two or three treatments; however, some cases require a second course (Proctor). Distribution of ionizing energy is adequate if the lymphoid tissue involvement is limited in extent and is not associated with the usual generalized nasopharyngeal hyperplasia.

The disadvantages of radium are several. We have shown the very intense ionization close to the applicator and the rapid "fall off" at a short distance. This means that placement must be exactly on the lymphoid tissue and, further, that only the hyperplastic lymphoid tissue in the immediate vicinity of the applicator receives an adequate dosage. Radium must be used cautiously, if at all, after previous irradiation. It should be used in small doses, or treatment should be deferred, in the presence of severe infection. There is definite danger to the operator on repeated use of radium, and care must be taken to keep his own dosage within tolerance. The beta radiation can be avoided by the use of two pairs of rubber gloves, but the only protection against gamma rays is distance. The physician should stay 30 feet away from the patient once the radium is in place. The radium must be stored in a lead cylinder 4 to 6 inches (10.16 to 15.24 cm.) in thickness and the usual precautions observed in handling it.[4b]

The treatment is not as harmless as generally considered. There have been cases of radium ulcers on the posterior nasopharynx from the above dosages. As noted above, Braestrup estimates that in treating three patients a week permissible tolerance of the hands of the physician or nurse would be reached; therefore, relatives should hold the applicator when such is necessary. Fowler[6] has seen cracked thumb nails secondary to lifting the nostril and inserting applicators. Robbins and Schulz estimate that the operator receives 10 r a treatment at the outer tip of the handle of the applicator; this is quadrupled halfway down the handle. Crowe, on the other hand, states that he has used radon or radium daily for 20 years without any ill effects. Braestrup believes that the regularly employed dose may be productive of late radiation damage to the patient, with ulcers or even neoplasm in the nasopharynx. These changes may take 10 or 20 years to develop.

Robbins and Schulz warn against the routine use of radium or roentgen rays in benign conditions. Postradiation damage may be years in developing, and with the relatively recent use of the radium monel applicator, with its exceedingly high output, late untoward results may occur. These authors suggest the determination of an erythema dose on the arm of the operator and advise that less than an erythema dose be administered in the nasopharynx. As little as 700 r given with mildly filtered radium may produce an erythema of the skin, and some late scarring may follow. With the larger doses routinely employed in the radium treatment of the nasopharynx, the likelihood of atrophy, necrosis or even neoplasia increases.

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[15] Seedorf, E. E., and McKay, E. D.: Roentgen Therapy for Lymphoid Hyperplasia of Nasopharynx, Texas State J. Med. 43: 457 (Nov.) 1947.

[16] Uhlmann, E. M.; Rosenblum, P., and Perlman, S. J.: Radiation Therapy of Tonsils and Adenoids, Arch. Pediat. 65: 532 (Oct.) 1948.

[17] Schenck, H. P.: Influence of Nasopharyngeal Hyperplasia on Ear: Histologic Examination of Hyperplastic Lymph Follicles After Irradiation, Laryngoscope 51: 780 (Aug.) 1941.

Roentgen Therapy.—The "disadvantage" of roentgen therapy is that it necessitates three to six treatments. There occasionally may be transient parotid swelling and temporary dryness of the mouth if large fields are used.

The advantages of roentgen therapy, as compared with those of radium therapy, are that no anesthesia is required, it can easily be given to children and there is no pain. The centering of the roentgen beam can be exact and duplicated without difficulty. One of the great advantages, as we have shown above, is that the entire lymphoid-bearing area can be irradiated with an adequate dose without harm to the skin, underlying tissues or bones. The weekly dose is only a fraction of an erythema dose. When the roentgen treatment is protracted ionization is more gradual and "gentle" than it is with radium.

COMMENT

The clinical value of radium or roentgen therapy in the control of lymphoid hyperplasia of the nasopharynx has been established over a period of years in thousands of cases. The recognition of the importance of these cases rests with the general practitioner and the otolaryngologist. The realization of the severe consequences of chronic eustachian tube block with resultant deafness and the multiplicity of signs and symptoms of lymphoid hyperplasia should encourage the physician to be alert to detect these conditions and to expose them to safe radiation therapy.

SUMMARY

We discuss the relative advantages and disadvantages of roentgen and radium therapy in the treatment of lymphoid hyperplasia of the nasopharynx that causes deafness and allied auditory disturbances.

We illustrate the distribution of ionization through the involved tissues and adjacent areas, using the two common forms of radiant energy, and we report some recent data on the beta and gamma dosage from standard radium applicators.

In the light of these physical data we show that the dosage throughout the zone commonly involved in lymphoid hyperplasia is more homogeneous and efficient with external roentgen beams than with intranasal radium beams.

We also show that the dose in the immediate proximity of the radium applicators is some 10 times the dose ordinarily regarded as reasonable or safe for the treatment of nonmalignant conditions.

From personal experience in the treatment of 720 cases, we report excellent results with roentgen therapy in from 60 to 90 per cent of the cases, depending on the severity of the disease and the nature of the subjective complaints. These results were validated by independent clinical observation of the referring physicians, many supplemented by audiometric and other objective tests.

The maximum tissue dose required for cure when roentgen therapy is employed is much lower than when standard radium applicators are used: roentgen therapy is consequently safer and should, in our opinion, be employed as the method of choice.

450 Sutter Street.

ABSTRACT OF DISCUSSION

Dr. U. V. Portmann, Cleveland: As stated by the authors, there are reports of ulcerations and other injuries attributed to the radiation from nasopharyngeal applicators. It is possible that not all are due to direct radiation effects but may be the result of injudicious treatment in the presence of acute infection or of unnecessary trauma. Nevertheless, the applicator dosage charts indicate that the quantities of radiation from them at the eustachian orifices are relatively large in comparison with the amounts necessary for destruction of lymphoid tissue or for effectual irradiation of the nasopharynx by roentgen therapy. The particular indication for the radium applicator is for the small masses of lymphoid tissue at the orifice of the eustachian tube or in the fossa of Rosenmüller that cause symptoms. Even this localized treatment, in the presence of acute infection, may be injurious. The reaction to the combination of infection and radiation may result in temporary obstruction to the eustachian tube, causing otitis media, or resulting in later permanent obstruction. Correctly administered roentgen therapy will not cause such damage in the presence of infection. Radium therapy should not be used to destroy large masses of lymphoid tissue in the nasopharynx. The quickest way to eliminate them is surgical removal; roentgen therapy is efficacious, especially if acute infection is present, or postoperatively if there are remnants. Also, roentgen therapy is preferable for primary or secondary enlargement of the lingual tonsils sometimes associated with hyperplastic lymphoid tissue in the nasopharynx. This treatment is indicated for otorrhea, resulting from the same condition, when the eustachian tube is patent yet mucoid material forms in the middle ear. In such cases the eardrum usually is damaged or destroyed. Discussion of the technic for roentgen therapy sometimes leads to unnecessary controversies and may be unimportant. The authors have found "140 kvp with a half-value layer of 9 mm. Al. entirely satisfactory". I was one of the first to prove that biologic effect is independent of quality and that the physical dose applied is of major importance; therefore I consider the voltage and filter unimportant. I prefer 200 kv. therapy because there is less possibility of skin changes and the depth dose is somewhat higher. I prefer to direct the irradiation obliquely through circular portals over the maxillary antrums. The distance from these portals to the orifices of the eustachian tubes is the same (about 6 cm.) as it is through the lateral portals used by the authors. The entire nasopharynx can be treated by angulation through small maxillary portals and irradiation of the parotids, teeth and temporomandibular joint is avoided.

Dr. Henry J. Ullmann, Santa Barbara, Calif.: I want to add one more point that Dr. Portmann left out. How many of these children receiving this relatively massive local dose of radium are going to turn up with atresias, fibrotic areas or late radiation breakdowns, one, two, three, four, five or six years later? And the physician who sees them has never heard of their having had radium, and wonders how he is going to account for it. There are late effects that are extremely important, and I am frankly much worried at the percentage of those that will occur after the recommended dose of radium but will not occur with properly given roentgen ray therapy.

Dr. John O'Sullivan, Melbourne, Australia: I should like to congratulate the speaker and the co-authors of the paper. I should like to ask only one question. In the presence of severe infection, does Dr. Mottram in any way modify the dosage administered, especially in the early cases? I have personally carried out this method, and I start off with a much smaller dose; I am just wondering whether she has in any way found that necessary.

Dr. Martha E. Mottram, San Francisco: We prefer to have the otolaryngologist try to clear the infection in the nasopharynx. Otherwise, if we start radiation therapy, the dose is cut down, and, of course, with radium therapy in acute infection treatment should be deferred or it should be cut down very considerably.

Chairman: You said the radium therapy should be cut down?

Dr. Mottram: Or deferred.

Chairman: But you have not had any difficulty with the use of roentgen therapy in cases that have shown infection?

Dr. Mottram: No, we have cut our doses, but we prefer to have the infection cleaned up first if it is severe.

SPECIAL ARTICLE

BENIGN AND MALIGNANT DISEASES OF THE BREAST

Edward J. McCormick, M.D., Toledo, O.

From time to time there will be published in THE JOURNAL *review articles intended for the general practitioner. Dr. McCormick's article is one of this series.*—ED.

Many of our ideas regarding breast tumors and cancer and the results of treatment are misleading for various reasons. Surgeons generally are inclined to speak of breast operations in numbers that far exceed the incidence of breast cancer in the experience of the individual operator. A recent survey at one hospital, where I participated in a heavy surgical schedule (7,059 operations in 1949 and 7,032 in 1950) and where admissions to all departments average 13,000 a year, showed that 129 breast specimens were examined in 1949 and 99 in 1950. Of the 228 biopsies done, 59 were on adenocarcinomas. A similar ratio has been found to exist in other large general hospitals in communities of 200,000 or 300,000 inhabitants. There is, of course, no doubt that some surgeons in a few centers, who have devoted themselves in large part to breast surgery, have operated on large numbers of patients with breast cancer, but this is not true of the average general surgeon. The busy operator will be surprised if he reviews his last 10,000 operative procedures to find that he has done comparatively few radical operations for breast cancer.

Adair[1] states that breast cancer is the commonest type of cancer found in women, and he notes that in New York state there are 60 women per 100,000 population in whom breast cancer develops or one new breast cancer develops in women annually to each 1,666 of the population. This means, according to Adair, that in a city of 100,000 population not more than 60 new breast cancers would develop in a year. The probability that a woman will acquire cancer of the breast is higher than the probability that the same woman will acquire cancer of the cervix, uterus or ovary, according to a survey made by the Bureau of Cancer Control of New York state in 1948 and cited by Adair. These figures would be found true in the average community. In a city of 300,000 population 180 cases in a year divided among the qualified operators give each surgeon few cases and the occasional operator little experience in this field. It has been estimated that 12,000 women die each year in the United States from breast cancer. It has been said that about 4 per cent of all female adults acquire the disease.

I think it can also be stated that the various prognostic classifications of breast cancers are faulty. The fact that the patient has a small movable tumor and no palpable axillary nodes does not necessarily place her in a group in which 80 per cent or more cures may be expected. Distal metastases may be present. Unless a more diligent search by x-ray and physical examination is undertaken, the family, the patient and the surgeon may be disappointed. It is also true that the larger tumor with some fixation and palpable axillary nodes may still be localized in the breast and axilla.

No statistics dealing with results of radical breast surgery should be based entirely on the so-called five year cure. Cancers do recur 10, 15 and 20 years following radical mastectomy. Five year salvage is not permanent cure.

Examinations of breasts are being conducted by physicians and patients more frequently because of publicity and information reaching the laity. Biopsies are increasing in most hospitals. Prevention is always superior to attempted cure. More radical treatment of questionable benign and so-called premalignant conditions should be considered. I see no reason for too much conservatism in management of so-called chronic cystic mastitis, in which a local biopsy removes only a small part of a disseminated condition that is frequently painful and considered by many as chronically irritating and capable of undergoing malignant change. There are opinions to the contrary. Some experienced men have said, in effect, that so-called chronic cystic mastitis will subside with the menopause. This may be true, but the real answer as to what a physician should do in such a case is obvious if he has as much concern for the patient as he would have for his mother, wife or sister.

In my experience, the type and location of the growth and the age of the patient are perhaps more important than the size of the mass or its movability.

The connection between breast tumors and endocrine activity deserves continued study, and this is especially true so far as replacement therapy is concerned. While it is said that cancer of the breast can be caused by administration of estrogens in the experimental animal but not in the human, the prolonged administration of certain preparations causes changes in the female genital tract and in the breast. This is especially true of the too ambitious use of diethylstilbestrol (premarin,® a water-soluble estrogenic substance) and other products. If this type of therapy is necessary, the patient should be under observation and the breasts should be examined at frequent intervals.

Testosterone has a definite place in the treatment of breast cancer. One of my patients, with bone and soft tissue recurrences, pathological fractures of several ribs and fluid in the pleural cavity, requiring thoracentesis on three or more occasions, has shown no recurrence after testosterone therapy. Seventeen thousand milligrams has been administered by implantation and by injection. The result has been amazing. Other patients have responded in degrees that could be described as good, fair and poor. It is astounding to me that cancer of the breast can present so great a variation of response to all forms of treatment and to all combinations of recognized surgical and therapeutic measures. I have seen cases in which testosterone propionate had no effect. Some patients have seemed to improve to a degree after cessation of treatment. Estrogens have been used. My observations of the efficacy of female hormones have been limited and the results not impressive. I have been enthusiastic in my use of testosterone, but extremely cautious in my use of estrogens, in breast cancer. I have felt at times that patients with breast disease who return to their homes after surgery and radiation should be warned against female hormone therapy unless it is administered by someone expert in the field of cancer. George Crile's statement years ago that sterilization of the breast cancer patient seemed helpful, and the subsequent observation by others that orchidectomy and diethylstilbestrol treatment were indicated for cancer of the prostate gland and testosterone therapy for the improvement of some patients with breast cancer—both impress me with the fact that there are powerful extracts and drugs whose complete potentialities may not be understood. The endocrine glands and substances present a rich field for the researcher in cancer. In this connection, reports have reached me concerning the development of gynecomastia and breast cancer in patients with prostate disease who are on diethylstilbestrol therapy. One such patient has been operated on recently by one of my colleagues.

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[1] Adair, F. E.: Practitioner **165**: 473-481, 1950.

I have removed many benign tumors and some carcinomas from male breasts. The results of treatment of cancer of male breasts are very poor.

I have no hesitancy in advising surgical or x-ray castration in the child-bearing group. Cancer of the breast in young women and in pregnant women has pathological potentialities, I have found, which might be compared to the physical powers of the atomic bomb. Pregnancy is a stimulator of cancer of the breast or the cervix. The most rapidly fatal cases in my series have been among the younger patients with active gonads and pregnancy.

No consideration of the breast is complete without some understanding of the profound changes occurring in the organ from birth and through puberty, the menstrual periods, pregnancy and the atrophy of old age. The female breast is in a constant state of activity. These changes are physiological, and they are hormonal in origin. The physiological, embryological and hormonal influences on the male and female breast are important in the interpretation of pathology and the treatment of all breast lesions whether benign or malignant.

EMBRYOLOGY

About 55 years ago Schultz (cited by Fitzwilliams [2]) demonstrated epidermal ridges extending from the axilla to the groin in early pig embryos. These lines became separated into epidermal elevations as age advanced. This line is well developed in the human embryo 15 mm. long, and it segments when the embryo is 26 to 60 mm. long. These areas were called *Anlagen* by the Germans and milk spots by the English. The embryonal development of the breasts, therefore, makes possible many anomalies. Among these are (1) inverted nipples, (2) amastia (absence of the breasts), (3) polymastia, (4) hypertrophy, (5) polythelia, (6) gynecomastia and (7) athelia (absence of the nipple).

Of special interest in the anomalous group is polymastia, the multiplicity of mammary glands, which presents the possibility of primary breast tumors in the axillas, the abdominal wall, the groin and the thighs or buttocks. Breast tissue may be found in these locations with athelia or absence of the nipple. Hypertrophy is sometimes difficult to distinguish from malignant degenerative changes. It is a surgical condition, incident in both young and old, and it can occur in any decade of life after puberty.

Breast development in the male should be observed at frequent intervals and especially in patients on hormone therapy. Any deviation from normal in the human breast makes possible the appearance of unsual pathology.

There are certain conditions in the breast that, while not malignant, should be clinically considered so until proved otherwise. Among these are (1) adenomas or fibroadenomas, (2) myxomas, (3) chondromas and osteomas, (4) angiomas, (5) chronic mastitis and chronic cystic mastitis and Schimmelbusch's disease, adenosis.

Adenomas, once their capsule is ruptured, may become infiltrative if not malignant. Fibroadenomas are hard, encapsulated, freely movable tumors. Some intracanalicular fibroadenomas have been known to grow rapidly, producing skin necrosis and forming an ulcerating mass.[3] Myxomas, chondromas, osteomas and angiomas are very rare and do not become malignant.

I have previously referred to chronic mastitis or chronic cystic mastitis. This condition seems difficult to distinguish from adenosis. Perhaps these terms designate different states in one pathological condition. Contrary to the views expressed by some other experienced men, I am of the opinion that this condition may be precancerous. Everything necessary for chronic irritation is certainly present. A cancerous change has been found in or subsequent to chronic cystic mastitis. It has been said by Behan [4] that the greatest number of adenocarcinomas arise in the walls of the papillary growths of cysts in chronic cystic mastitis. It has been my practice, when I do a biopsy for a breast lump, and when, in removing the suspicious area, I find the tissue of the breast permeated with dark cysts of varying size, to proceed through a small incision to remove all or most of the breast tissue. Leaving such breast tissue when the frozen section is negative is an invitation to future trouble for the surgeon and continued complaint of lumps and soreness and mental disturbance of the patient.

Cysts of the breast may be classified as (1) simple, (2) galactocele, (3) fibrocystic adenoma, (4) papillomatous and (5) echinococcus.

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[2] Fitzwilliams, D. C. L.: On the Breast, St. Louis, C. V. Mosby Company, 1924, chap. I.

[3] Bevan, A. D.: The Problem of Tumors of the Breast from the Standpoint of the General Practitioner and Surgeon: Diagnosis, Treatment, Pathology and Prognosis, J. A. M. A. 95: 1311 (Nov. 1) 1930; also, Proc. Internat. Assemb. Inter-State Post-Grad. M. A., North America 5: 140-146, 1930.

[4] Behan, A. D.: Cancer, St. Louis, C. V. Mosby Company, 1938, p. 159.

Cancer has been found in cysts of the breast. All cysts should be removed for examination by the pathologist. In connection with chronic cystic disease and cystic adenoma, let us recall that Ewing [5] has pointed out that papillomas or cystic adenomas may be benign as long as the intracystic growth is confined by the cyst wall. When the capsule is penetrated, the growth is definitely malignant.

CANCERS OF THE BREAST

Cancer of the breast may be classified as (1) scirrhus carcinoma, (2) adenocarcinoma, (3) ductal carcinoma, (4) medullary carcinoma, (5) epithelioma, (6) Paget's disease, (7) sarcoma and (8) metastatic neoplasm.

These tumors are all surgical if the diagnosis is early, and there is hope for cure. Surgical palliation may be necessary in certain advanced cases. It is my practice to advise the patient and the family as to what may be expected in the way of cure or palliation. Frank discussion of all probabilities results in better cooperation with the surgeon and radiologist and likewise informs the patient and her family regarding the limitations of the various modes of treatment. When the tumor is classified as to operability and prognosis from the standpoint of the breast and axillary findings, x-ray studies of the bones of the head, neck, chest and trunk are helpful. Positive findings may contraindicate a radical procedure and protect the surgeon and his art from criticism. The discovery of distal metastases will change the surgical and radiologic procedures.

Much confusion exists concerning the pathologic classifications and character of papillary neoplasms of the breast. The two types of papillary neoplasms are the benign intraductal papillomas and the malignant papillary carcinomas. The first type is frequent. The malignant type is rare according to some observers, but other operators have observed an incidence of malignancy of 47.2 per cent in cases in which there was sanguineous discharge from the nipple.[6] Bloodgood concluded many years ago that serous or bloody fluid, in the absence of a palpable tumor, did not indicate cancer. Haagensen, Stout and Phillips advise local excision of the duct and papilloma in the nonmalignant type with a reasonable margin of surrounding breast tissue.[7] If the papillary neoplasm is malignant, radical breast surgery should be done.

PROGNOSIS AND OPERABILITY

The type of cancer cell, the age of the patient and other factors influence operability and prognosis. The following classification, not original with me, has been presented with variations by numerous authors:

1. If the breast contains a small movable tumor and no palpable lymph nodes and there is no evidence of intrathoracic or skeletal metastases, a minimum of 70 per cent of the patients should be alive and well five years after radical surgery, 71 per cent if postoperative radiation has been given. Some authors state that under these conditions 80 to 90 per cent should survive for five years. The point that interests me and all patients is the percentage in this group in which the disease is entirely eradicated and permanent cure possible. All classifications indicate that from 10 to 30 per cent are not alive in this, the most favorable group, after five years. Some of course, die from causes other than cancer.

2. If there is a large tumor in the breast with fixation to the skin or to the pectoral muscles and palpable and microscopic evidence of axillary metastases, 28 per cent of the patients with such manifestations will be alive in five years following radical surgery and 57 per cent will be alive for this period if radical surgery is followed by radiation.

3. Patients with axillary and supraclavicular nodes and distal metastases can be offered little hope. With radiation, 5 per cent or less may live five years.

It is evident, as previously stated, that this and other similar classifications of breast tumors for prognosis are faulty. The curability figures given by different authors vary, and surgeons and radiologists frequently differ in their opinions regarding the classification into which a given patient should be placed. I have seen patients who were treated early promptly develop metastases, and I have in my own practice seen patients who were in class 2 living and well years after surgery and radiation. The pathological picture and the age of the patient are probably the most important factors and should supersede other considerations.

SYMPTOMS OF BREAST CANCER

Every paper and textbook describes and lists the symptoms of cancer. MacCarty [8] has said, "Cancers are not recognized early by the medical profession and never will be until it learns that there are no characteristic signs and symptoms of early cancer."

A history of hereditary influences, trauma, abscess formation, caked breasts, pain and absence of pain, itching, orange peel appearance of the skin, abnormal superficial vein pattern, change in contour and other signs and symptoms are of value, though some are evidence of advanced growth. I prefer to tell my colleagues and patients that "every lump in the breast is a cancer until proved otherwise." Transillumination is impressive but of limited value. I am not an advocate of aspiration of cysts or needle biopsy. Careful and proper examination of all breasts, both male and female, and biopsy of any suspected area offer more to the patient and doctor than do any other procedures. I have not been satisfied with results obtained by the Papanicolaou examination of fluid from the nipple. In this connectoin, removal of a lump or part of a lump from a breast, followed by surgery a week or two later, is the worst possible treatment in the light of our present knowledge.

We hope, of course, that our research workers will develop a technique wherein the Geiger counter may be of value in breast examination and diagnosis. It is my opinion that the doctor or surgeon should forget textbook descriptions and symptoms and resort to biopsy when a lump is found in the breast.

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[5] Ewing, J.: Neoplastic Diseases: A Treatise on Tumors, Philadelphia, W. B. Saunders Company, 1922, p. 501.

[6] Adair, F. E.: Sanguineous Discharge from the Nipple and Its Significance in Relation to Cancer of the Breast: A Study Based on 108 Cases, Ann. Surg. **91**:197, 1930.

[7] Haagensen, C. D.; Stout, A. P., and Phillips, J. S.: The Papillary Neoplasms of the Breast: I. Benign Intraductal Papilloma, Ann. Surg. **133**: 18, 1951.

[8] MacCarty, W. C.: Why Cancer Is Not Recognized Early, Am. J. Cancer **22**: 831, 1934.

Biopsy, removing by a good margin the mass in the breast, and frozen section by a capable pathologist should be followed immediately by radical mastectomy if cancer is discovered. All instruments, gowns, gloves and drapes used in the biopsy procedure should be discarded before the major operation is started. Pathological breast tissue cannot be removed without cutting across drainage channels, which in cancer cases probably contain malignant cells that may be transplanted.

The operative technique may vary in radical mastectomy, but regardless of whether a transverse, Halsted or other incision is used, a complete dissection of the axilla should be done and all tissue from the axilla reflected downwards with the pectoral muscles and fascia extending to the rectus sheath. No approach should ever be made for convenience of closure. Skin graft may be necessary on occasion.

The radical surgical treatment is being widened in scope in some centers to include resection of the clavicle and dissection of the neck glands, and removal of involved ribs and of the axillary vein has been advocated. Additional experience with the extension of surgical attack may change to some extent the accepted routine of radical mastectomy, but it seems logical to believe that the large percentage of patients requiring such additional surgical attacks have already developed distal metastases.

Simple mastectomy followed by x-ray therapy is advocated by some and is mentioned only to be condemned. It should also be stated that there is no longer debate regarding the respective merits of surgery and x-ray therapy. The statistics plainly show that x-ray therapy alone is of limited value. Some good surgeons feel that no case of cancer of the breast is cured except by complete surgical removal. I agree with these competent and experienced operators, but my patients all have postoperative therapy because results are improved and one can rarely be certain in cancer surgery that all cells have been removed, regardless of the skill of the operator or the extent of the excision.

SUMMARY AND CONCLUSIONS

In closing, permit me to emphasize some of the important points to be considered in breast cancer.

The breast is one of the most accessible parts of the human anatomy. Examination is simple. Breast pathology should be recognized early by the practitioner if results are to be improved.

Biopsy is the only reliable means of establishing the diagnosis.

The age of the patient and the type of breast cancer are most important in the determination of prognosis.

Complete excision of the breast and axillary contents is absolutely necessary if cure is expected. Operation should be followed by expert radiological treatment.

Early diagnosis and radical mastectomy seem more important to me than extension of the surgical field to the neck, thoracic cage and other structures. Such extension presupposes wide distribution of the disease beyond the scope of the aseptic scalpel.

The endocrine field seems to offer much to the research worker and to the breast surgeon. There is little doubt in my mind at the present time about the possibility of direct relationship between malignant development in certain parts of the male and female anatomy and endocrine activity.

A revision of the accepted preoperative and postoperative yardsticks, having to do with operability, prognosis, five year cures and permanent cures, seems indicated.

This paper and the conclusions contained therein are the result of the examination of thousands of breasts and hundreds of operations upon the breast for benign lesions and malignancies. There seems to be a tendency in the literature today for an ultrascientific appoach to breast lesions. I have never been able to convince myself that catheterization of the ducts, injection of opaque material and other suggested procedures are of great importance. It is my opinion that early biopsy and early operation, when indicated, will improve results, and it is also my belief that the removal of benign lesions will frequently prevent the development of cancer. In my experience, mortality following radical breast procedures, when ample blood replacement is used, is practically nil. I have had but one death among my last 300 patients. I am concerned with the problem of permanent cure. My percentage of permanent cures is in line with the experience of others who do much work in this field. I am always depressed, as is every breast surgeon, when metastasis develops in the so-called early case.

The approach to the treatment of all cancers will change during the next 25 years. The cure will not be within the scope of our present techniques. It will be simplified. It is my hope that the youthful cancer sufferer and those of more years, in the so-called cancer age, will be protected against cancer or, if afflicted, promptly cured. This hope is common to all of us. We have made progress in our attack upon benign and malignant lesions of the breast, but we have a long distance to go and we will have more opportunity of reaching the millenium when we recognize the limitations of our present mode of attack on both the early and late cases.

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Advice on Diet.—The fundamental principles of medical dietetics are only slowly emerging from an accumulation of scientific data on one hand and a mass of traditional empiricism on the other. Just as the paramount importance of good nutrition in the maintenance of health has become more widely appreciated by medical men in recent years, so the prescription of complicated diet sheets has tended to recede into the background. There can be few instances in dietetic out-patient departments in which the giving out of printed diet sheets is justifiable. Advice on diet should be individual and not done by routine mass-methods, and even in individual cases the actual writing out of detailed diet sheets should rarely be necessary, with a few obvious exceptions. The primary object of a dietetic department should be to spread the gospel of sound nutrition among the population, and the dietetic treatment of various diseases usually only calls for very simple common-sense advice. Yet 15 years ago it was commonly believed by medical men that there was some specific dietetic treatment for a large number of disorders, for which detailed diet sheets were supposed to have an almost mystical therapeutic potentiality.—D. M. Dunlop, Modern Trends in Therapeutic Dietetics, *The British Journal of Nutrition,* Vol. 4, Nos. 2 & 3, 1950.

COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE

This paper is one of a series requested by the Council on National Emergency Medical Service to inform the medical profession on problems pertaining to civil defense. It does not necessarily reflect, however, the opinions of the Council or any other official body unless so stated in the article.

C. JOSEPH STETLER, *Secretary.*

RADIOLOGICAL ASPECTS OF CIVIL DEFENSE

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GENERAL CONSIDERATIONS

Should there ever be an atomic attack on this country, the public generally would want something done to ascertain whether there was any danger from radioactive contamination. They would probably not be satisfied unless this were done, and they would probably blame the responsible authorities in local government if it were not done. The assurance that radiological surveys had been carried out, and that they revealed no danger from any residual radioactive contamination, would probably go far toward reducing confusion and perhaps even minimizing that phase of a tendency to panic which may be based on fear of radioactivity.

It is difficult for the person who is not technically trained to understand the phenomena of radioactivity. It is difficult for the average person to visualize the significance of radiological hazards because they are not readily detected by the senses, their presence being made known at the time only by the use of special instruments. Unseen, unheard and not felt, they tend to fall into the category of the "unknown," and fear of the unknown is often more difficult to control than fear of the known. Because of this, and various other factors, the role of radiological safety personnel in the prevention or control of panic could be of vital importance in event of atomic attack. Information they can collect and interpret will have a very important bearing on a variety of problems involving human psychology and human behavior, problems which are of primary concern to the responsible authorities of civil government in event of atomic attack.

Definition of Radiological Defense.—Radiological defense is defined as the protective measures taken to minimize personnel and material damage from radioactivity resulting from enemy attack. As such, it is a planned, organized and directed scheme of "radiological safety" which includes more than simple detection and measurement of radioactivity. It includes as well:

(*a*) Training, organization and distribution of technically qualified personnel.

(*b*) Development and application of techniques and procedures of radiological safety, including the use of instruments for detecting and measuring activity to the end that, as a health protection measure, the existence of residual radiation hazards can be determined and their significance estimated.

(*c*) Development, provision and maintenance of suitable technical equipment.

(*d*) Protection or removal of exposed personnel.

(*e*) Decontamination of personnel, equipment, structures and terrain.

In civil defense, radiological defense is the organized effort of the people, acting under civil authority, to prevent or minimize the injurious effects which may result from the exposure of personnel to residual radioactivity, or "radioactive contamination," which may result from, or arise in connection with, an enemy attack on civil populations.

Radiological defense measures would be particularly directed against the radioactive contamination that might exist after the detonation of an atomic bomb. They would be equally effective, however, if an enemy deliberately employed radioactive materials as an offensive weapon against civilian populations.

Aims of Radiological Defense.—The more specific aims of radiological defense within civil defense are (*a*) to prevent or minimize confusion and panic, through collection and proper dissemination of factual information concerning the existence, or nonexistence, of radiological hazards, (*b*) to prevent or mitigate personnel injuries resulting from exposure to residual radiation hazards, through detection and avoidance of such hazards and (*c*) to facilitate the work of relief and the restoration of essential community services, through the protection of personnel whose civil defense duties require their entry into radiologically hazardous areas.

Some Problems in Radiological Defense.—What are some of the special problems of radiological defense? There are a variety of such problems. Many of these are technical in nature. They are probably the easiest to solve. Others relate to the difficulties of organization and preparation of a special group of civil defense workers and the development of effective civil defense operation schemes. These are probably the most difficult to solve. Still others are intimately related to difficult problems in human relations and in human psychology and behavior.

Requirements in Radiological Defense.—General requirements may be summarized briefly.

A national policy with respect to radiological defense is required and has been established.[1] In line with this policy, a plan or scheme for radiological defense must be prepared in certain states and communities.[2] An organization must be developed to carry out the plan. Qualified personnel will be required to implement the plan. Persons who are proficient in the detection and measurement of radioactivity must be trained to apply these techniques in civil defense and in civil defense operations.

Instruments of the proper type and in appropriate numbers must be procured and made available for radiological defense personnel. These instruments will be needed for training as well as in event of an emergency. Instruments must be carefully selected and suited to the needs and requirements of civil defense activities.[3] Provisions must be made for their issue, storage, maintenance and repair. They must be appropriately dispersed and kept in a state of functional readiness.

Radiological defense personnel will need to be trained to work with personnel in other civil defense activities. They will also be needed to assist in the instruction of workers in other civil defense services, and in the interpretation to them of information concerning radiological safety measures. Some qualified radiological defense personnel will be needed to serve as radiological safety advisers on the civil defense staffs of mayors and governors.

Radiological defense specialists will be required to meet and solve some of the more complicated or "postgraduate" technical and scientific problems which may arise, particularly those associated with the prevention of radioactive poisoning and the evaluation of hazards that may give rise to such poisoning. Qualified radiological defense leaders will be needed to provide for the benefit of the public, reliable information relative to the existence or nonexistence of radiological hazards and to interpret their significance if present.

Ability to cope with atomic disaster will depend in large measure on the state of preparation for civil defense that exists at the time of the attack. This state of preparation, in turn, will depend on the preliminary training that has been conducted, the organization that has been effected and the civil defense forces, including those for radiplogical defense, which are "in being" at the time of attack.

A general understanding of the phenomena associated with the explosion of an atomic bomb and the effects produced by such an explosion is essential for those directly concerned with radiological defense planning. A technical treatment of those matters,

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This is not an official statement of any agency of the federal government.

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[1] United States *Civil Defense, NSRB* doc. *128,* U. S. Government Printing Office, 1950, pp. 67-68.

[2] Health Services and Special Weapons Defense, Federal Civil Defense Administration, *AG-11-1, U. S.* Government Printing Office, Dec. 1950, chap. 17, pp. 178-200.

[3] Civil Defense Radiological Monitoring Instruments Specifications, Federal Civil Defense Administration, 1950. Sent to, and available through, state civil defense authorities.

however, does not lie within the scope of this discussion except insofar as may be required later to explain the specific problems in hand.

Radiological defense will employ a technology new to civil defense but one that has been successfully applied in the various atomic bomb tests that have been conducted. It involves intelligent and sound application of technical and scientific knowledge, some, but fortunately not all, of it highly specialized. The radiological defense organization will be composed of technical personnel who have not been medically trained. They will serve a health protection service. In this, they will bear a very important relationship to the medical services and to the broad medical mission of civil defense.

Technical information obtained by radiological defense personnel will permit qualified and specially trained medical officers of the civil defense organization (1) to make a medical evaluation of the situation (2) to interpret the medical significance of such radiation hazards as might be encountered and (3) to evaluate such individual exposures to radioactive contamination as may be required by the mission of the medical services. The Radiological Defense Advisory Committee may, to advantage, serve in the capacity of a Radiation Evaluation Board if this is deemed locally practicable.

While it is desirable for all physicians to have some general knowledge of the purposes of radiological defense and to know in general how the radiological defense mission is accomplished, physicians should not serve as monitors. This would be a serious waste of greatly needed medical personnel. Although not needed in great numbers, some physicians would be required who have had some special training to enable them to serve as advisors in the medical phases of radiological defense. In like manner, scientists and highly trained technical personnel should not ordinarily serve as monitors on radiological defense teams. A limited number of such personnel would be vitally needed, however, to serve on radiological defense "specialists teams" in connection with some tasks which are technically more difficult and more complicated than that of radiological survey work and monitoring.

Qualified radiological defense personnel, possessing level heads and exercising sound judgment, can be of invaluable assistance to civil defense leaders and can do a great deal in the public interest. Careless, or poorly qualified, they can be very harmful to the public interest. This fact and its importance must be recognized at all times. It is essential that radiological defense leaders possess not only sound technical qualifications but a level head and the ability to exercise good common sense as well.

Radiological Defense in Action; Attack and Actions Assumed.—Radiological defense personnel would have a variety of duties. The importance of these duties in relation to civil defense would vary in accordance with the conditions that would be found to exist after an attack. They would also vary somewhat with respect to the time that may have elapsed subsequent to the attack. In most instances it is likely that need for such personnel would be greatest immediately after the attack and perhaps for a day or two thereafter. Should no residual radiological hazard exist, once this fact is known, relatively few radiological defense personnel would be needed in the incident area. They would then be available for other civil defense duties. Should there be a significant residual radiological hazard, the number of personnel required and the duration of the time that they would be required would be greater depending on the conditions encountered.

A clearer understanding of the problems of radiological defense may be developed, if the situation likely to follow an atomic attack be assumed and certain proposed radiological defense measures described.

A. Early Phase, Before Civil Defense Headquarters Is Established: In event of attack, community authorities, in accordance with a prearranged plan, would undoubtedly issue a "call to duty" for civil defense personnel. Radiological defense personnel would report to some suitable and prearranged "reporting in" place (police headquarters, fire headquarters, offices of health departments, training centers in local schools) and await further instructions.[4] Their movement from there into the area of civil defense activity would be in accordance with the needs of those in charge of the civil defense work. Those persons most readily available, and nearest to the incident, would be employed to assist "on the spot" commanders of the police and fire services. Personnel to conduct radiological surveys of the area[5] would probably have to be aided by the police or fire services through their provisions of (1) emergency transportation and escort and (2) emergency communication services. Once at the site of the incident, radiological defense personnel would carry out a radiological survey. If any radiation were detected, it would be measured and the significance of the hazard evaluated. Should radiologically hazardous areas be found, the existence and location of such hazards would be made known to the responsible authority (police) within the area, their specific boundaries would be delimited and their significance indicated. The police, not the radiological personnel, would be responsible for the control of the movement of persons into and out of a hazardous area.

As soon as possible, information relative to the radiological hazards would be communicated to central civil defense control, in accordance with a prearranged plan, preferably through police or fire service communication facilities. On the reliability and availability of this initial information may well hinge the effectiveness of all early phase civil defense operations.

Personnel of the radiological defense organization not engaged in area survey work would be assigned as "service monitors"[6] to accompany working parties of the fire and rescue services. Their duty would then be to remain with these parties, insofar as practicable, to advise them of the severity of the exposures, if any, to which they might be subjected while carrying out their work and to give technical information to "on the spot" commanders essential to the calculation of such risks, with respect to radiological exposures, as might be required. Their aim would be to prevent such injurious overexposures as might not be reasonably justifiable. It would not be to prevent persons from accepting such risks as are justifiable. A practical example may be given. If a serious overexposure could be incurred by a group of men working in a hazardous area for eight hours, a moderate exposure in four hours and an insignificant exposure in two hours, there would be little justification for permitting the eight-hour exposure. A replacement of the group at the end of four hours or earlier would be most desirable from the standpoint of human values and economy of manpower. It would also be practicable even in civil defense work. The requirements of radiological defense must not be intended to prevent exposures that are really necessary. They are to prevent those injurious exposures that are not really necessary.

B. Early Phase, After Central Civil Defense Control Is Established: As soon as a central control of civil defense is able to function with respect to personnel working at the site of the incident, central control could receive emergency radiological reports from leaders of survey personnel via police or fire service communications in accordance with prearranged plan. By this means, the responsible authority in the city would be advised as to the nature, extent and seriousness of radiological hazards present as tentatively indicated by earliest reports of the radiological survey of the area. This is a vital "intelligence" function. Should it be found that no significant or extensive radiological hazards exist, the conduct of fire, police and rescue operations could go on as rapidly as other conditions would permit and without the need of observing radiological safety precautions. Radiological defense personnel would then be held in reserve areas and should not be moved to the area of destruction except as specific need might arise, at which time they would be sent out by authority or direction of the local civil defense commander. The information gained by the radiological survey operations in this early phase would be of great importance to the conduct of civil defense operations after this time. A limited number of radiological survey personnel would continue to make surveys to confirm or alter the earlier estimate of the situation with respect to radiological hazards.

If radiological hazards were found to exist, and if they were of sufficiently serious physiological significance, the civil defense operations might need to be conducted with somewhat more caution. Life-saving rescue work would undoubtedly be done in most instances regardless of the hazards. The technical information obtained from the radiological survey of areas would provide the basis for the evaluation of the hazard and for the preliminary calculation of the risk that might be incurred. Information of this character would be required (1) for those responsible for directing civil defense activities, (2) for group leaders and (3) for the guidance of the individual civil defense worker.

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[4] At such places instruments for radiological survey could be suitably dispersed and stored so as to be available to the radiological defense personnel when needed. Such a plan would make possible the assembly of personnel at places where teams could be organized and where they could obtain necessary equipment.

[5] Vide infra Area Survey Teams, under Organization.

[6] Vide infra Service Monitoring Teams, under Organization.

Personnel of the fire and rescue services, when required to work within the radiologically hazardous area, could be accompanied insofar as practicable, by "service monitors" of the radiological defense organization. They would, in general, be attached to these services at the time, rather than prior to the attack. If so, it would be their duties to measure the exposure of individual working groups and to advise the responsible group leaders, and "on the spot" commanders concerned, as to the nature and severity of the risks being encountered or assumed. Only in exceptional circumstances would it be necessary to report this information back to sector control centers and central civil defense headquarters.

If the radiological hazards were slight, or of no significance or if they were absent, the presence of some radiological defense personnel with these working parties, or at least their ready availability, would do much to aid the morale of the civil defense workers and do much to offset the adverse psychological effects that might be expected.

If there were a significant residual radioactive contamination, such protective services would be of vital importance in the avoidance of important and injurious overexposures of civil defense workers and of other personnel.

C. Later Phases, Under Central Civil Defense Control: Should there be no residual radiological hazards, relatively few radiological defense personnel would be required to continue on duty after the first day or so, although a skeleton organization should probably be maintained, particularly to make checks on areas suspected of being, or rumored as being, radiologically hazardous. If there were significant residual radiological hazard, then the services of the radiological defense personnel might be needed for some days or longer, and an extended radiological safety operation would probably have to be carried out.

During the conduct of the activities just described for the three phases of civil defense operation, it would be necessary to maintain a radiological situation plot in the civil defense headquarters and the main subordinate control centers. On such plot-maps would be charted information concerning the location and the severity of the radiological hazards. This information would be required for the use and guidance of those in responsible authority within the community. Information could be passed from leaders or groups conducting radiological survey in the field to the subordinate control centers by way of police service communications and/or fire service communications, or by such other means as the civil defense plan may provide. Subordinate control centers would communicate with central headquarters.

The police and fire services are normally prepared to utilize all forms of modern communication and have personnel skilled in their use under conditions of disaster. They also have alternate facilities to use if needed, including even motorcyle and foot messenger services. While it would not be practicable to send routine radiological defense information via police and fire service communication facilities, the civil defense plan should, nevertheless, assure the availability of these facilities for high priority and emergency reports.

In the very earliest phases of the incident, the transportation of essential radiological defense personnel up to, and within, the incident area would present a problem that must be provided for in the operation plan. Police or fire forces personnel might be required for escort. It would be necessary to have some workers among the radiological defense personnel who would be concerned with instrument supply, replacement and repair.

Other aspects of radiological defense operations in areas removed from the immediate site of destruction include the problems that may arise in connection with suspected "downwind" air contamination and "fall out" resulting from atomic attack. These will be discussed later.

TECHNICAL CONSIDERATIONS IN RADIOLOGICAL DEFENSE

Radiological Hazards Produced by Atomic Attack.—The detonation of an atomic bomb can, and may, produce two general forms of radiological hazard, the occurrence and importance of which would depend largely on the manner in which the bomb was detonated, that is, whether high in the air as at Hiroshima, near the surface of the ground as in New Mexico and at Eniwetok or under water as at Bikini. There are two general types of radiological hazard which might be created: (*a*) initial radiation hazard and (*b*) residual radiation hazard.

Initial Radiation Hazard.—The initial radiation hazard is created by the prompt radiation of gamma rays and neutrons at the moment of detonation and by the delayed radiation of gamma rays and neutrons from the "ball of fire" immediately after the detonation and lasting for a period of not more than two minutes thereafter. The initial radiation is the severest external radiation hazard created by the explosion of the bomb. The initial radiation hazard produces injury only as a source of external body radiation.

At Hiroshima some persons were by chance shielded by terrain, earthen embankments, heavy concrete walls or similar barriers to gamma radiation. Some who had taken refuge in underground shelters at the time of the air raid warning and who remained there were protected from the injurious ionizing radiations. It is difficult to plan for protection against this radiation hazard. Because protection against the initial radiation hazard is not a function of radiological personnel, this problem will not be discussed in greater detail at this time. It is well, however, to point out that suitable advice relative to this problem is being provided the states by the Federal Civil Defense Administration.

Residual Radiation Hazard.—A residual radiation hazard may, under certain conditions, result from the explosion of an atomic bomb. A hazard of this nature may be due (1) to the presence of fission products that are produced by the splitting of atoms in the bomb explosion and emit beta particles and gamma rays, (2) to the presence of unfissioned bomb material (plutonium) or (3) to the presence of radioactive materials resulting from the bombardment of certain chemical elements by neutrons at the time of, or immediately after, the detonation of the bomb. A residual radiation hazard may cause injury (1) as a source of external radiation or (2) as a source of internal radiation.

Protection against the residual radiation hazards is achieved by the employment of radiological safety measures. The hazards can be detected and their significance evaluated. They can, in large measure, be avoided. The organized and directed activities of radiological defense personnel are aimed primarily at the prevention of injuries from residual radiation hazards.

The gamma radiation from residual contamination can be severe but will not approach the intensity of that of the initial radiation. After the first day or so it would be difficult for one to acquire a severely injurious overexposure to penetrating gamma radiation, or even a dose in excess of 100 of total body radiation.

Radiological Hazards of Various Types of Bomb Bursts.—*Air Burst:* The detonation of an atomic bomb at the altitude employed at Hiroshima and Nagasaki would produce an intense initial radiation hazard. The bomb would produce the same effects as were observed in the victims at Hiroshima and Nagasaki. The radiation injuries produced in the survivors at Hiroshima and Nagasaki were all due to this form of hazard. Gamma radiation alone was responsible for all radiation injuries that occurred in persons who were more than a few hundreds yards from the center of the explosion area.

After an air burst at a high altitude on a clear day there would probably be no significant residual radiation hazards on the ground, because most of the fission products, and unfissioned bomb material, would be carried to a great altitude by the hot gases resulting from the atomic explosion. They would then be widely dispersed and carried away by the winds at varying levels of altitude with ever increasing dilution. Contamination of air masses, particularly closely downwind of the explosion, might provide some degree of hazard to planes operating therein. Such a condition would probably be transient and might be injurious, depending on a variety of influencing factors. Should radioactive materials from such contaminated air masses "fall out" on the surface of the ground at sites far removed from the area of the explosion, they would probably create no significant health hazards, although they might be measurable in so-called tracer amounts. Such a situation might give rise to difficult problems in human relations but would probably not be hazardous to health.

Radiological Hazards Produced by Surface and Sub-Surface Bursts: In planning for radiological defense, one cannot entirely disregard the possibility of surface and subsurface bomb detonations.

In a surface burst, the radiological hazards produced at the actual time of detonation would be grossly comparable to those of an air burst, although the range of the radiant heat, flash and blast effects would be noticeably lessened. Persistent radioactive contamination of the ground would be encountered in the immediate target area and for variable distances immediately downwind of the explosion area. It might present a significant radiological hazard, particularly to personnel whose civil defense duties may require entry therein. Contamination of air masses would be much the same as that resulting from an air burst. In addition, there might be some contamination of nearby land surfaces as a result of heavy "fall out" and as a result of spread of ground contamination through surface drainage and movement of subsurface waters. Any distant downwind contamination attributable to cloud "fall out" would probably not constitute a significant health hazard of any kind, and it is unlikely that it could ever be the source of radioactive poisoning from the inhalation or ingestion of contaminated materials.

Should the bomb be detonated beneath the surface of a body of water, under the same conditions as in the second Bikini test, the radiological effects would probably differ widely from those produced by surface or high altitude explosions. Under these circumstances, the radiations released at the instant of detonation may largely be absorbed by the water and so be rendered of minor importance. On the other hand, contamination of air masses, though relatively limited in extent, may be of considerable severity. Nearby land areas and above-surface objects in the path of the "base-surge" and the "radioactive rain" which would accompany it, as well as the body of water itself, would doubtless be heavily contaminated with radioactive fission products. This contamination would persist for variable periods of time, depending on the rate of radioactive decay, dispersion and dilution and other factors. The significance of such a residual contamination could be determined only after analysis of the situation by qualified radiological defense personnel employing techniques now well established in practice.

"Fall Out": When the radioactive, metallic oxide particles in the bomb cloud collide with the particles of dirt, which are in general considerably larger, they adhere and the dirt particles in the cloud become contaminated with the radioactive substances. Then, when the violence of the disturbance due to the explosion has subsided, the contaminated dirt particles gradually fall back to earth, giving rise to the phenomenon known as "fall out." If the height of the bomb burst exceeds a certain value, there will probably be no detectable "fall out" since no extraneous particles will be sucked into the cloud. However, should the bomb be detonated relatively close to the ground, or on the surface of the ground, and considerable amounts of dirt and other debris were sucked into the radioactive cloud, the "fall out" would have to be considered as a danger until proved otherwise. Much the same situation would exist if the bomb were detonated at a low level above the surface of water, although then the "fall out" would consist mainly of water drops. In an underwater burst, detectable, but probably not dangerous, "fall out" might occur at a considerable distance from the site of the explosion. In an underwater burst, the really significant "fall out" would be that closely associate with the "base surge" and "radioactive rain" created by such an explosion, and this would be observed for variable distances immediately downwind of the explosion.

"Base Surge" and "Radioactive Rain": In the underwater test at Bikini a "base surge" and a "radioactive rain" were observed for the first time. Together they were responsible for the surface contamination that was observed within a radius of a few thousand yards downwind of the explosion. For a technical discussion of these two important and somewhat complicated phenomena, "The Effects of Atomic Weapons"[7] should be consulted.

Significance of Problems of Food Contamination in Civil Defense.—Foodstuffs from storage places, markets, restaurants or food-processing plants within the areas of residual contamination should be suspected of being contaminated and should be monitored before being used. Nonperishable foods found to be contaminated should not be destroyed until monitored by special radiological defense teams and they advise disposal.

After an atomic explosion, within the areas of residual contamination, foods in undamaged refrigerators, cans, bottles, jars and sealed packages may be used without monitoring, provided care is exercised in washing off any dust or liquid from the outside of the container or package before opening and precautions taken to prevent contaminated materials from getting into the food during the process of opening the container or removing its contents.

Under most unusual conditions certain risks might be encountered in the long-continued and repeated ingestion of animal or plant forms that take up radioactive elements from the environment and concentrate them within their own bodies. The control of such a problem would, however, not be difficult, and the medical specialists in radiological defense would be alert to the detection and evaluation of such an unusual situation.

Significance of Problems of Water Contamination in Civil Defense.—Contamination of water would not be a problem after an aerial burst such as at Hiroshima and Nagasaki.

The Bikini underwater test provided the ideal situation for maximum water contamination—it was a particular type of underwater burst, occurring in a deep body of salt water which is stagnant in nature and in which the exchange of water in and out is actually very small. Under these conditions, the radioactive contamination within the water tended to remain confined to the water, the bottom and the biological forms within that body of water. There was a considerable natural shifting of radioactively contaminated materials within this lagoon, and a potential hazard may have persisted with respect to food forms taken from it.

The hazard that might be created in rivers, lakes and harbors would vary, depending on the depth of the water at the site of detonation and the size of the body of water, the rapidity of exchange as a consequence of current, tide or otherwise and, of course, the magnitude of the original contamination. These are some of the technical matters to be considered in relation to a potential hazard of this nature. They would be of primary concern to "specialists teams" of the radiological defense organization, rather than to "area survey" monitors.

It now appears that the civil defense problems associated with exposures to internal radiation hazards of this nature and which are of relatively short duration (hours, days) are probably not as formidable as was once feared. The more complicated and possibly more serious problems would center around long-continued or repeated exposures through the drinking of contaminated waters or the eating of food forms derived directly, or indirectly, from waters so contaminated.

Modern municipal filtration systems, in those cities where these facilities exist, would provide a great deal of protection through their ability to remove such contamination. It would be possible to keep a close check on this matter at the filtration plants, and when required the contaminated materials of the filtration system could be replaced. The problem is one not too difficult to deal with technically, even in the most extreme conditions visualized. This problem would be of primary concern to specially trained public health radiological defense teams, rather than to area survey monitors.

The process of distillation, as employed in the nontarget ships at Bikini after the underwater test, effectively removed the radioactive materials by holding them in the evaporator. This provides substantial evidence as to the efficacy of this procedure in decontaminating water under the extreme conditions of contamination that characterized that test.

In this connection, it must be pointed out that radioactivity in measurable amounts does not necessarily mean radioactivity in injurious amounts. In the use of radioisotopes in medical diagnosis small amounts of radioactive materials, much too small to produce any injury, are employed in so-called tracer amounts. Radioactive contamination of water from anything but a Bikini type underwater burst would probably be of much the same significance. While it would be detectable, measurable and of technical interest, it is not likely to be of practical significance from the standpoint of causing injury to personnel except possibly as a result of prolonged and repeated ingestion of contaminated water or food products derived therefrom.

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[7] The Effects of Atomic Weapons, Atomic Energy Commission and Department of Defense, Government Printing Office, Dec. 1950.

The techniques of study of such water would be much the same as those now in use in biological and medical laboratories where water is tested, and in those medical laboratories where the blood and urine of patients treated with radioisotopes is measured and studied. Similar techniques could be employed effectively to protect personnel from this form of hazard were it ever encountered. This would be done by special public health teams or "specialists teams' of the radiological defense organization, rather than by "area survey" monitors.

Water containing one-millionth of a curie of fission products per liter is considered safe for drinking. Many popular mineral waters contain more than this.

Some cities, such as New York, obtain their water supplies from sources removed from the city proper. In such circumstances the problems of providing safe water for drinking and household purposes would probably not be difficult or serious. Many cities do not have filtration facilities, so that the problems may require special consideration.

Decontamination Measures.—As used in radiological defense, decontamination means the removal of radioactive materials from the person or object contaminated with such materials. It does not consist of changing the rate of decay of the radioactive elements present. By moving the radioactive materials from one place to another, either partially or completely, one may serve a useful purpose or may simply shift the site of hazard from one place to another. The dispersion of radioactive materials in air or water, and on land surfaces, may reduce the amount of contamination at a particular site. It may, however, give rise to new problems at other sites. Generally, such dispersion, and the accompanying dilution tends to favor the protection of personnel. This is the active factor, which in association with "radioactive decay," constitutes nature's way of decontamination. There are a few important exceptions to this generalization. Under certain conditions, biological forms may tend to concentrate radioactive substances and a rather subtle and perhaps significant radiological hazard may develop where it is not expected.

Decontamination procedures as they apply to extensive land surfaces and buildings, and perhaps to a lesser extent to some large items of equipment, have not proved to be entirely satisfactory. On the other hand, it is possible to remove contamination from the external surfaces of the human body through the removal of contaminated clothing combined with a thorough washing and rewashing of the face, hands and body with soap and water. This is both practical and effective. It should be a routine procedure for personnel required to work in contaminated areas.

Small objects the surface of which are nonporous or nonabsorbent, may often be decontaminated by somewhat similar techniques. In certain circumstances, weak acids or other chemicals may be employed to advantage. Generally such materials as are absorbent are not readily, if at all, decontaminated. Wood, concrete, asphalt, soil and certain organic materials can rarely be decontaminated successfully.

Clothing will tend to prevent radioactive materials from coming into contact with the skin. In this sense only, may clothing be considered as being protective. When the contaminated clothing is removed, one phase of personal decontamination is carried out. When the contaminated clothing is being worn, and the radioactive material is not in direct contact with the skin, the beta particles or alpha particles emitted will usually not injure the skin although the gamma radiations emitted will penetrate the clothing and may produce injury.

The Armed Services Chemical Warfare Masks will prevent inhalation of radioactively contaminated materials and, when required, can be employed for this purpose by personnel who are working in contaminated areas and by those engaged in certain decontamination operations.

Exposure Tables.—In the atomic energy program, a standard has been set, called the "permissible dose" or "tolerance dose." This stipulates an exposure to the entire body that a man could experience every day in his life without danger of injury. This has been set at a maximum of 0.1 r a day with a weekly maximum of 0.3 r.

This applies to daily exposures. It is a very different matter when applied to a one-time exposure in emergency and to that accumulated in a period of a day or so. Under these conditions a person may be subjected to many times the daily "permissible dose" without injury.

In emergency civil defense operations and with exposures incurred within a few days the following points would obtain:

1. A person could probably be exposed to 25 to 50 r of total body radiation without incurring injury and be able to continue at his duties. If possible, he should not be exposed to any more radiation, at least not for several weeks. The Atomic Energy Commission has recommended to the Federal Civil Defense Administration that workers not be exposed to more than 25 r, and this recommendation should be followed.

2. A person exposed to 50 to 100 r of total body radiation might have some nausea and some changes in the number of cells in his blood, but he would most likely be able to continue his duties. Such exposures should most certainly be avoided if possible, and the individual should not be exposed to any more radiation, at least for many weeks.

3. A person exposed to 100 to 200 r might be incapacitated after the injury suffered began to take effect—probably some hours after exposure. He should not be exposed to any more radiation. It would be difficult to acquire exposures of this magnitude after the first day as a consequence of residual radiation hazards.

4. Exposures in excess of 200 r would in most instances produce "noneffectives," as injury and some degree of disability are practically certain.[8]

The interpretation of the medical significance of various levels of exposure to radioactive contamination is a function of the medical services rather than of the technical personnel of radiological defense. In the absence of medical personnel, monitors and technical personnel of the radiological defense organization would interpret their findings in accordance with the standards just described.

Exposure standards for other than penetrating gamma radiations lie beyond the technical scope of the present discussion.

It should be pointed out at this time that it is not the function of radiological defense monitors to determine, for purposes of medical diagnosis or treatment, the amount of exposure to radiation that individual casualties might have received during the period of initial radiation. Should it be deemed advisable to estimate the amount of radiation that might have been received by persons who were exposed in the open within certain ranges of the center of physical destruction, this should be done by technical and medical specialists on the staff of the civil defense headquarters, and not by monitors.

Types of Instruments Required for Technical Procedures.—The principal types of radiological defense equipment required for local operations are as follows:

Survey Meters: These instruments (Geiger counters and ionization chambers) are used to detect and to measure ionizing radiations, principally gamma radiation. Usually they measure the amount of radiation per unit of time, in which case they may be referred to as "rate meters." The requirements for these instruments will vary from a relatively large number of high intensity gamma ray monitoring instruments and a lesser number of low intensity gamma survey meters to a relatively small number of instruments that can detect alpha and beta particles at low intensities or in small amounts. The high intensity gamma survey meters should cover a range from 0.025 to 500 r per hour. The low intensity gamma survey meters are suitable for training purposes also. Specifications for civil defense monitoring instruments have been issued by the Federal Civil Defense

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[8] For additional information on this problem see The Effects of Atomic Weapons,[7] table 11.28, page 342; figure 8.16, page 253; figure 8.17, page 254, and table 8.10, page 251. Also, Health Services and Special Weapons Defense, Federal Civil Defense Administration, Government Printing Office, Dec. 1950, p. 12.

Administration for the guidance of users and manufacturers.[9]

Dosimeters or Cumulative Dosage Indicators: These instruments (primarily special purpose electroscopes) are used to measure the total amount of exposure that has taken place over a particular period of time. They are worn by monitoring personnel to measure the total amount of radiation to which they have been exposed. With some dosimeters, the amount of the exposure may be read directly in the dosimeter. With others, the exposure is read indirectly by the use of a second instrument. The direct reading type is probably the most desirable for most civil defense purposes. Recently some simplified dosimeters have been developed that depend on the effects of ionizing radiations on a chemical indicator, or a special film preparation.

Other Laboratory Type Equipment: Other types of special equipment, of a laboratory nature, might be required for particular purposes. These will include counter scaler instruments with special alpha detectors, low intensity beta-gamma survey meters, portable alpha proportional counters, air filters, and sample preparation equipment and other instruments and accessories. It is not fitting at this time to more than mention that such equipment is available and could be readily procured if the need for such were known to exist. Such instruments are not needed in great quantities, or in such urgent haste, that they could not be readily provided from existing sources of supply and storage. Many items of equipment presently in use in radioisotope laboratories are well suited to this purpose.

Photographic Dosimetry: Photographic film badges may be worn by a person to measure the amount of external body radiation to which he is exposed. When the film is developed and compared with proper standards, the exposures can be measured. It is likely for both technical and operational reasons, that the use of such devices will be less suited to civil defense needs than in somewhat comparable situations in industrial plants and laboratories in which there are penetrating ionizing radiation hazards.

The issue, collection, development and measurement of film badges under conditions of civil defense requirements would take up too much time and effort to be practicable. Record keeping and the need for notification of involved personnel would be further hampering. While the use of such film badges would not be generally applicable to civil defense workers, under certain conditions associated with the persistence of a significant residual radiological hazard their use, on a limited scale, may be highly desirable and also practicable.

ORGANIZATION

Personnel.—The radiological defense organization will be manned by part time volunteer workers who will not receive pay for their services. They will be trained in the technical and operational aspects of their duties as part of the civil defense training program. They will not have had medical training and will frequently need advice from those who have had, because their function is primarily one of health protection and there are many medical implications associated therewith.

Monitoring Teams.—The backbone of the working organization will be the monitoring team. The composition of a typical monitoring team as suggested by the Federal Civil Defense Administration would be one "leading monitor" and two monitors equipped and qualified to discharge the duties assigned to them. They would be aided by three "assistants" who have not had special technical training but who have been trained to assist the monitors. To provide flexibility in assignment and discharge of duties, all monitors should be trained to serve either in "area survey operations" or in "service monitoring."

Area Survey Teams.—When assigned to the radiological monitoring of areas suspected of being contaminated, the monitoring teams will serve as "area survey teams."

Service Monitoring Teams.—When assigned to the monitoring of civil defense personnel working in potentially radiologically hazardous areas they will serve as "service monitoring teams."

Specialists Teams.—To solve some of the technically more difficult tasks, such as those involving radiochemical analyses, and to meet some of the other problems which require the services of trained and experienced specialists, a limited number of "specialists teams" may be required.

Headquarters Group.—A limited number of personnel will be needed to man the plotting rooms in civil defense headquarters and to assist in the direction of the activities of the monitoring teams. In addition, some personnel will be required to assist in the supply and maintenance of monitoring instruments.

Operations.—To function as a smooth-working civil defense service, there must be a proper organization and a suitable operation plan, both well integrated into the civil defense scheme of the community. The activities of the monitoring teams must be directed and they must be carried out according to a prearranged plan insofar as this is possible. Otherwise, there will be added confusion, and the mission of the health services of civil defense will not be attained. In the planning of the radiological defense operations leadership, patience and good common sense will be required. Where those in charge of radiological defense understand the missions and tasks of those persons in the other civil defense services, and when they in turn understand the mission of the radiological defense personnel, an effective cooperative scheme of operations can be effected. It cannot be done otherwise.

TRAINING

Radiological Defense (Monitors).—The Federal Civil Defense Administration has encouraged the establishment of courses for radiological monitors within the states. Such courses emphasize the practical aspects of the detection and measurement of radiation. They also stress the use of these techniques in civil defense operations. By limitation of the scope of the technical tasks to which monitors may be assigned, it has been possible to train personnel with a good general background of education to the level of proficiency that would be required in the discharge of "area survey" and "service monitoring" duties. Approximately one year ago, the Atomic Energy Commission provided leadership and assisted in the setting up of such training in many of the states. Leaders, trained in these courses, are now assisting in the conduct of similar courses of basic instruction within their states.

Medical Aspects of Radiological Defense.—The training of selected physicians, especially radiologists, in the medical aspects of radiological defense and in the medical problems associated with the possibility of a residual radiation hazard will be developed more actively in the future. These persons would then, as representatives of the medical services, act in the capacity of medical advisers in relation to the radiological defense services. There are a variety of problems requiring special attention at the hands of medical personnel who possess special knowledge in this new field of medical responsibility. The Atomic Energy Commission assisted in the conduct of some such courses this past year, and the instruction was of an intensive nature and at the postgraduate level.

Medical Aspects of Atomic Warfare.—It is generally recognized that all physicians and nurses should have some orientation instruction in the medical aspects of atomic warfare. The purpose of this instruction is to acquaint them with the medical and health problems that are peculiar to atomic attack, rather than to enable them to serve as medical or health advisers with respect to the more complicated technical aspects of radiological defense. An orientation course of this character can be satisfactorily conducted even when limited to only eight to 12 hours of actual instruction. Already, a great many classes of this character have been held, the instruction usually being given by persons who had attended courses given by the Atomic Energy Commission or the armed services. The purpose in describing this phase of instruction at this time is to point out its relation to the two courses that have just been described. It is important that the specific training objectives for a particular course of instruction be kept in mind when considering the planning of programs of instruction. Whereas as many physicians as possible should receive the orientation course in the medical aspects of atomic warfare, relatively few would need to attend the longer course in the medical aspects of radiological defense.

The Council on National Emergency Medical Services will cooperate closely with the Federal Civil Defense Administration in appropriate fields of medical training. State medical associations may be called on to participate actively in the planning and conduct of such instruction within their respective states.

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[9] Civil Defense Radiological Monitoring Instruments Specifications, Federal Civil Defense Administration, Dec. 6, 1950. Available in state civil defense offices.

CONCLUSION

It has been my purpose to present an over-all picture of a new problem that is closely related to the responsibilities of the medical profession of this country. The need for a radiological safety scheme within civil defense is described, and many of the technical considerations involved are presented. The problems of organization and training are discussed only in order that attention may be directed to certain basic concepts of concern to the medical profession.

The medical profession has a special responsibility in matters of health protection even in civil defense. As physicians, we have a civil responsibility to know something about the problems associated with the possibility of residual radioactive contamination created by an enemy attack on civilian communities. In relation to these matters, we will be called on over and over again to give advice. As a profession, we have a particular appreciation of not only the medical but also the psychological problems involved. We can help to interpret them to our fellow men. It is in the national interest that we be as well prepared and as well informed as possible in order that we can fulfil our obligations in this respect in the best possible manner.

COUNCIL ON PHARMACY AND CHEMISTRY

The Council has authorized publication of the following report from the Committee on Research, a Standing Committee of the Council on Pharmacy and Chemistry.

R. T. Stormont, M.D., *Secretary.*

Previous publications[1] *by the Subcommittee on Steroids and Cancer of the Committee on Research have discussed the background of the problem of estrogen and androgen treatment of mammary cancer, outlined the procedures used in the current cooperative study sponsored by the Committee, and presented certain preliminary data obtained in this investigation. Details of some of the cases studied by participating investigators have also been published.*[2] *This report, prepared during the incumbency of Walton Van Winkle, Jr., as secretary of the Committee on Research, presents the Subcommittee's recommendations on the selection and treatment of patients with advanced mammary cancer and part of the data on which these recommendations are based. Ira T. Nathanson, Chairman; Frank E. Adair; Willard M. Allen; Earl T. Engle; Charles Huggins.*

Paul L. Wermer, M.D., *Secretary.*

CURRENT STATUS OF HORMONE THERAPY OF ADVANCED MAMMARY CANCER

MATERIAL STUDIED

Although records on more than 1,200 cases of mammary cancer treated with steroid hormones have been submitted to the Committee, only 886 cases have been included in the tabulations presented in this report. These cases were selected on the basis of the following criteria:

1. The diagnosis of mammary carcinoma was established by microscopic examination of tissue obtained at biopsy or operation or on the basis of other criteria such as roentgen evidence of pulmonary or osseous metastases.
2. The patient had very advanced primary, recurrent or metastatic disease not suitable for therapy by surgery or irradiation.
3. The patient had not been irradiated or castrated within the six-month period immediately preceding hormone therapy.
4. Roentgen ray therapy was not administered during hormone therapy, the patient was not castrated during therapy, nor was more than one hormone given during the period of observation.
5. The patient received treatment for at least four weeks.
6. Hormones were administered in accordance with the protocols established by the Committee.
7. All pertinent data on each case was recorded on the forms provided by the Committee.

The following is a tabulation of the number of patients receiving each of the hormones studied.[3]

	No. of Patients
Testosterone propionate (four schedules)	441
Methyltestosterone (200 mg. daily by mouth)	17
Diethylstilbestrol (15 mg. daily)	231
Ethinyl estradiol (3 mg. daily)	53
Premarin ® (30 mg. daily)	35
Estradiol diproprionate (5 mg. twice weekly)	21
Dienestrol (15 mg. daily)	24
Dimethyl ether of diethylstilbestrol (30 mg. daily)	35
Progesterone	11

A number of patients received the following compounds but the data are yet too limited for evaluation:

Methylandrostenediol
Testosterone cyclo pentenyl propionate
Monomestrol
Tri-para-anisyl-chloroethylene

Some patients received more than one hormone, although not simultaneously. In such instances, each period of hormone administration is regarded as a separate case. The data in table 1 justify this procedure, as far as this analysis is concerned. Whether previous hormone therapy may effect the patient's subsequent response in manner is not revealed in the present study.

The differences observed between the responses of patients who had received treatment and those previously treated with one of the hormones are within the statistical limits of error and hence are not to be regarded as significant for the number of cases observed.

SELECTION OF CASES

It must be emphasized that hormone therapy of mammary cancer is palliative only and not curative. Therefore, early diagnosis and removal by surgery remain the primary modes of attack on mammary cancer. In the presence of distant metastases, two forms of palliation are available: roentgen therapy and hormone therapy. A comparison of these forms of therapy has recently been made by Garland and his co-workers.[4] On the basis of these and other data, the Committee recommends that in the presence of localized and accessible osseous or soft tissue metastases surgery be performed whenever possible or adequate roentgen therapy be administered in lieu of hormone therapy. In the presence of widespread osseous or soft-tissue metastases, or lung metastases, hormone therapy *is often preferable as the primary therapeutic weapon.*

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[1] Estrogens and Androgens in Mammary Cancer, Council on Pharmacy and Chemistry, J. A. M. A. **135**: 987 (Dec. 13) 1947. Estrogens and Androgens in Mammary Cancer, A Progress Report, Council on Pharmacy and Chemistry, J. A. M. A. **140**: 1214 (Aug. 13) 1949. Van Winkle, W., Jr.: Action of Steroid Hormones in Mammary Cancer, Radiology **53**: 530, 1949. Proceedings of the First Conference on Steroid Hormones and Mammary Cancer, American Medical Association, Chicago, April 4-7, 1949.

[2] Talbot, T. R., and Escher, G. C.: Effects of Testosterone Propionate on the Peripheral Blood and Bone Marrow of Women with Advanced Inoperable Carcinoma of the Breast, J. Clin. Endocrinol. **9**:666, 1949. Taylor, S. G.; Slaughter, D., and Preston, F. W.: Treatment of Far-Advanced Inoperable Carcinoma of the Breast with Androgen and Estrogen, J. Clin. Endocrinol. **8**: 585, 1948. Huseby, R. A.: A Note Concerning the Selection of Therapy for Cases of Advanced Breast Carcinoma Involving the Bony Skeleton, Bull. Univ. Minnesota Hosp. **20**: 288, 1949. Huseby, R. A., and Arhelger, S. W.: Estrogen Therapy of Advanced Cancer of the Female Breast, Bull. Univ. Minnesota Hosp. **20**: 276, 1949. Cutler, M.; Schlemenson, M.; Kearney, V. V., and Caceus, E.: The Treatment of Advanced Mammary Cancer with Estrogens, Surgery **26**: 567, 1949. Cutler, M., and Schlemenson, M.: Treatment of Advanced Mammary Cancer with Testosterone, J. A. M. A. **138**: 187 (Sept. 18) 1948. Adair, F. E., and others: Use of Estrogens and Androgens in Advanced Mammary Cancer: Clinical and Laboratory Study of 105 Female Patients, J. A. M. A. **140**: 1193 (Aug. 13) 1949. McCullagh, E. P.: The Use of Sex Hormones in Cancer, Cleveland Clin. Quart. **16**: 21, 1949. Preston, F. W.; Taylor, S. G., and Crumrine, J. L.: The Effect of Testosterone Propionate on Metastases to Bone from Carcinoma of the Breast, J. Clin. Endocrinol. **9**: 1314, 1949. Macdonald, I., and Guiss, L. W.: Palliative Management of Mammary Carcinoma, California Med. **69**: 144, 1948. Nathanson, I. T.: Hormonal Treatment in Cancer, M. Clin. North America **34**: 1409, 1950. Nathanson, I. T.: Hormones in Relation to Tumors of the Female, in Meigs, J. V., and Sturgis, S. H.: Progress in Gynecology, New York, Grune & Stratton, 1950, vol. 2, p. 218. Nathanson, I. T.: Hormone Therapy in Cancer of the Breast, Soskin, S.: Prog. Clinical Endocrinology, New York, Grune & Stratton, 1950, p. 567.

Physiologic Age of Patient: Early investigators observed that the menopausal status of the patient apparently affected the results of hormone therapy, particularly the response to estrogens. The data obtained by the participating investigators in the Committee-sponsored investigation is shown in chart 1. These data indicated that the presence or absence of functioning ovaries probably has little significant effect on the response to testosterone propionate. However, it is apparent that postmenopausal women respond far better to the estrogens than do premenopausal women. Further analysis of the data reveals that the greater the number of years past the menopause the more likely is a satisfactory response to estrogen therapy. This is well illustrated in Chart 2 where the per cent of patients showing regression of soft tissue lesions is plotted according to the age of the patient. In general, the best results from estrogen therapy are obtained in patients more than five years postmenopausal.[5]

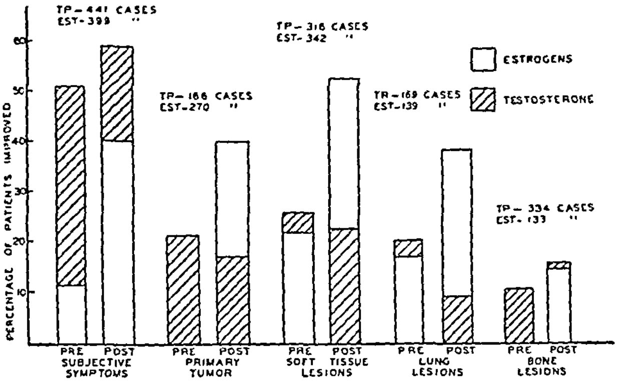

Chart 1.—Relation of menopausal status to response to hormones.

To further emphasize the importance of withholding estrogens from premenopausal patients with mammary cancer it should be mentioned that all of the patients who showed acceleration of their disease following estrogen therapy were in the premenopausal group or were in the menopause.

Choice of Hormone: It is obvious from Chart 1 that the hormone of choice for the premenopausal patient is testosterone propionate. In the postmenopausal patient with soft tissue lesions, estrogens appear to be far superior in producing an objective response than testosterone propionate. Where bone lesions predominate, there is little difference between response to estrogens and to testosterone propionate. However, since bone lesions are frequently the source of severe pain, and since testosterone appears to be superior to the estrogens in relieving subjective symptoms of the disease, most investigators prefer to use testosterone propionate in the treatment of osseous metastases.

Table 2 compares the values of the six most studied estrogens in the treatment of metastatic mammary cancer. According to these data ethinyl estradiol is slightly superior to the other estrogens. This superiority may be more apparent than real; however, since larger doses of other estrogens may be more efficacious than those used in this investigation, the difference in response might then disappear.

Unfortunately, the number of patients treated with methyltestosterone or methylandrostenediol has not been sufficient to permit valid comparisons with patients treated with testosterone propionate. In general, however, the dose of methyltestosterone employed has produced responses identical with responses to testosterone propionate. Methylandrostenediol, on the other hand, has not produced any satisfactory responses in the four patients in whom it has been used, with one possible exception.

The available data concerning progesterone are likewise fragmentary. Only one patient of the eleven treated showed any subjective improvement and one showed evidence of regression of soft tissue and bone lesions following progesterone therapy. One patient showed acceleration of soft tissue disease while receiving progesterone.

Location of Lesion: The distribution of metastases according to site and the response of these metastases to hormone therapy is shown in table 3. It is apparent, in the case of bone metastases, that the site of the lesion does not materially influence the response, although the data suggest that skull lesions may tend to respond more frequently than other bone metastases.

Among the soft tissue lesions, intra-abdominal metastases appear to respond least and, in estrogen-treated patients, skin and lymph node lesions respond most frequently. The apparent lack of response of abdominal lesions may be due to obvious difficulties in measuring or examining such lesions. In the testosterone-treated patients the response of skin and lymph-node lesions is not significantly greater than the response of other soft tissue lesions.

DOSAGE OF HORMONES

Testosterone Propionate: Four dosage schedules of testosterone propionate were explored. On all schedules, the weekly dose was given in three injections. Responses to the various dosage schedules are shown in Chart 3. The difference between the responses to the lowest dosage schedule (75 mg. weekly) and the highest (600 mg. weekly) is not significant. There is a suggestion that a dosage of 150 to 300 mg. weekly given in three divided doses may be optimal, but in this study 150 mg. weekly appeared to be as effective as 300 mg. weekly.

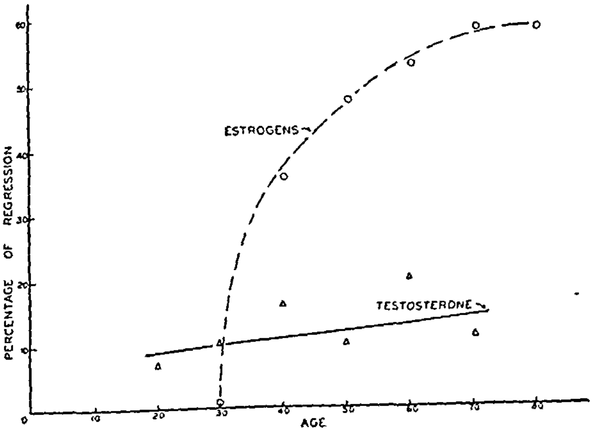

Chart 2.—Soft tissue lesion response.

It was not possible to determine the total dose at the time improvement began. Determination of the time of onset of improvement is subject to error, being dependent upon such factors as the frequency with which patients are seen by the physician and the frequency with which roentgenograms are taken. However, a crude measure of the relation of response to

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3. The following pharmaceutical houses generously donated the hormones used by the investigators:

Abbott Laboratories: diethylstilbestrol, progesterone
Ciba Pharmaceutical Products: testosterone propionate, methyltestosterone ethinyl estradiol, estradiol dipropionate
Ayerst, McKenna & Harrison: Premarin, progesterone
Charles E. Frosst (Canada): testosterone propionate, dienestrol, diethylstilbestrol
Lakeside Laboratories: diethylstilbestrol
Wm. S. Merrell Co.: tri-para-anisyl-chloroethylene
Organon, Inc.: estradiol dipropionate, ethinyl estradiol, methylandrostenediol, methyltestosterone, testosterone propionate
Rare-Galen, Inc.: testosterone propionate, dienestrol
Schering Corp.: testosterone propionate, estradiol dipropionate, ethinyl estradiol, methyltestosterone
Schering Corp., Ltd. (Canada): ethinyl estradiol, testosterone propionate
E. R. Squibb & Sons: diethylstilbestrol, progesterone
Upjohn Co.: diethylstilbestrol, progesterone
Wallace & Tiernan Products: dimethyl ether of diethylstilbestrol, monomestrol
White Laboratories, Inc.: dienestrol
Winthrop-Stearns, Inc.: diethylstilbestrol

4. Garland, L. H., and others: Roentgen and Steroid Hormone Therapy in Mammary Cancer Metastatic to Bone, J. A. M. A. **144**: 997 (Nov. 18) 1950.

5. Nathanson, I. T., in Proceedings of Laurentian Hormone Conference, American Association for the Advancement of Science, Franconia, New Hampshire, Sept. 10-15, 1950, to be published.

total dose may be obtained from the data submitted to the Committee by comparing the incidence of favorable response to total dose in this large group of patients. Inspection of the data revealed that only 6 per cent of the patients who received less than 3 Gm. of testosterone propionate responded favorably, in contrast to about 20 per cent of those who received 3 Gm. or more. Subjective improvement was twice as frequent among patients who received 2 Gm. or more as among those who received less than 2 Gm.

It should be remembered, however, that the total dose is a function of the duration of treatment, and the data presented below suggest that duration of treatment is of greater importance than the total dose administered.

Estrogens: Dosage schedules of the various estrogens were not varied in this investigation. The doses used were ones known to produce an effect, but as yet there are no data indicating that these doses are optimal. The four estrogens given in daily doses of 15 to 30 mg. showed approximately the same degree of potency. Patients who received less than 2 Gm. total dose showed only 15 per cent subjective improvement, whereas those receiving 2 Gm. or more showed slightly more than 50 per cent subjective improvement. Objective improvement was twice as frequent in patients given 4 Gm. or more as in those given a total of less than 4 Gm. Again, duration of treatment is probably more important in determining the outcome of therapy than the total dose administered.

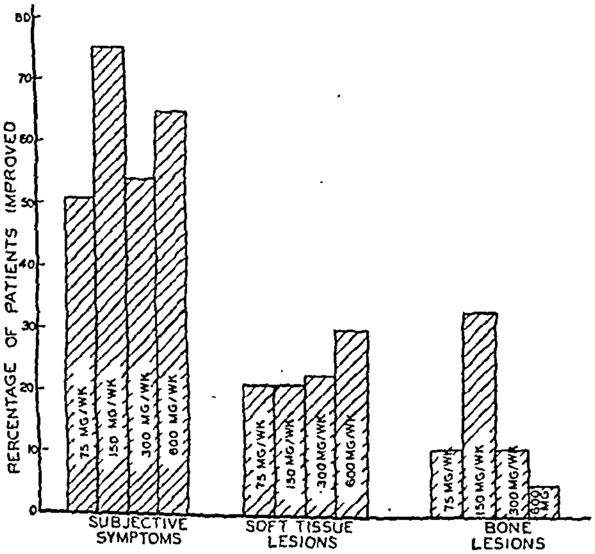

Chart 3.—Relation of dosage schedule of testosterone propionate to favorable response.

Ethinyl estradiol and estradiol dipropionate, because of their higher biological potency, were given in doses much smaller than those of the other estrogens. A total dosage of 200 mg. appeared to be minimal for a satisfactory response in about 75 per cent of the patients who exhibited objective improvement.

Methyltestosterone: Although only 17 patients were treated with methyltestosterone, the incidence of favorable response in patients receiving a total dose of 30 Gm. was between two and three times that in patients receiving less than 30 Gm. This figure is interesting because the weekly dose of methyltestosterone was five times the reference dose of testosterone propionate (300 mg. weekly) but the minimal total dose of methyltestosterone appears to be ten times that of testosterone propionate. The minimal duration of treatment with methyltestosterone is nearly twice that of testosterone propionate; thus, the difference in length of treatment corroborates the difference observed in minimal total doses.

DURATION OF TREATMENT

Testosterone Propionate: Although it was not possible to determine the exact time of onset of improvement in treated patients, the incidence of improvement was approximately twice as great in patients treated for more than three months than in those treated for a shorter time. This difference obtained under all dosage schedules, which suggests that although the total dose is important, the duration of therapy is equally or perhaps more important. A patient given 150 mg. weekly receives about 2 Gm. of testosterone propionate in a three month period and a patient given 300 mg. weekly receives about 4 Gm. in a three month period. These two dosage schedules were the ones showing the best responses.

TABLE 1.—*Relation of Prior Treatment to Subsequent Hormonal Response*

Prior Treatment	% of Subjective Improvement		% of Soft Tissue Regression		% of Bone Lesion Regression	
	Testosterone	Estrogen	Testosterone	Estrogen	Testosterone	Estrogen
None	59	39	24	53	13	18
Hormones	53	42	20	44	22	no cases

TABLE 2.—*Responses of Patients with Mammary Cancer to Six Estrogens*

Estrogen	Subjective Relief %	Primary Tumor Regression %	Soft Tissue Regression %	Lung Lesion Regression %	Bone Lesion Regression %
Diethylstilbestrol	39	42	53	29	14
Ethinyl estradiol	59	45	67	43	10
Premarin ®	35	45	44	8	16
Estradiol dipropionate	30	50	45	12	*
Dienestrol	46	13	42	17	*
Dimethyl ether DES	34	32	47	19	*

* Insufficient cases.

It should always be emphasized that these data only indicate a *minimum* treatment period and no effort has been made to determine the optimal or maximal duration of therapy. If a patient has not responded after three months and a total dose of 3 Gm., it is not likely that response will be obtained by further treatment.

TABLE 3.—*Response of Specific Metastatic Lesions to Testosterone Propionate and Estrogens*

Site of Metastasis	Testosterone		Estrogens	
	No. of Cases	Regressed, %	No. of Cases	Regressed, %
Bone				
Skull	79	19	32	20
Vertebrae	199	14	55	17
Ribs	134	14	50	15
Pelvis	179	13	45	11
Femur	103	11	36	7
Clavicle	23	11	14	0
Scapula	27	14	7	14
Humerus	31	11	8	0
Soft Tissue				
Brain	7	13	5	0
Lung *	97	13	86	33
Mediastinum	10	21	6	33
Liver	31	14	24	14
Abdomen	15	9	7	8
Skin	162	22	268	53
Opposite breast	25	18	30	30
Lymph nodes	206	22	251	48

* Does not include pleural lesions, whereas in other tables pleural lesions are included under "lung" classification.

Estrogens: It is more difficult to determine the minimal duration of treatment for maximum response to the estrogens. Regression occurred only occasionally in bone and lung lesions of patients treated for less than six months. Soft tissue lesions in the majority of patients showed regressions after three months of therapy. The difference in time required for response of osseous and soft tissue lesions may be due to the necessity of depending on roentgen ray evidence of alterations in osseous and lung lesions, while visual and palpatory evidence is used in external lesions. This suggests that in patients with bone and lung metastases, therapy should be given for a prolonged period before it is considered ineffective.

Methyltestosterone: In the few cases studied bone lesions responded earlier than soft tissue or lung lesions: Of those patients with bone lesions who responded, over half have shown such response at the end of three months of therapy. However, no patient with soft tissue or lung lesions responded until five months of treatment had elapsed.

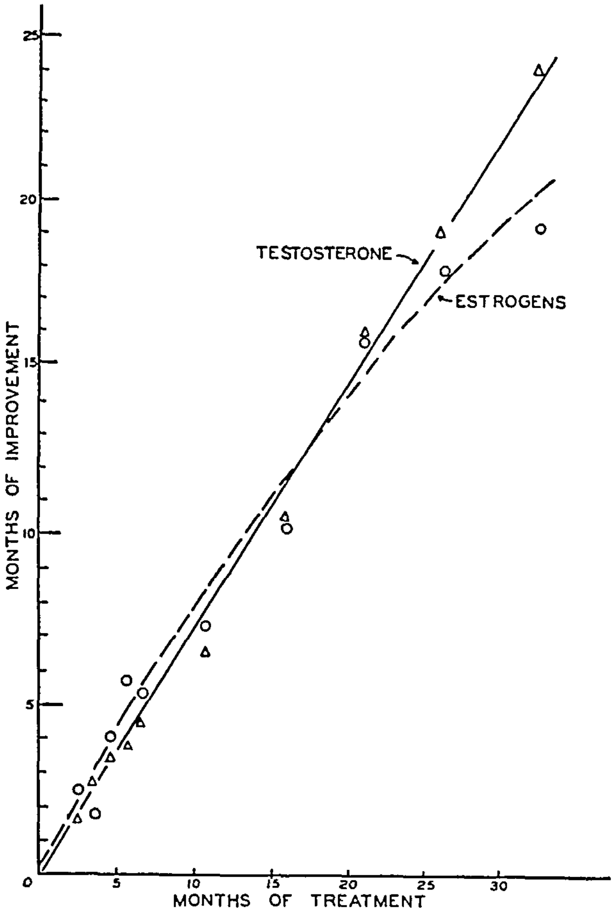

Chart 4.—Duration of subjective improvement.

DURATION OF IMPROVEMENT

Subjective Response: Although it is obvious that the duration of improvement should be related to the length of treatment, it is noteworthy that in the majority of cases the duration of improvement did not outlast the period of treatment. In many cases the disease became reactivated during treatment, necessitating cessation of therapy or change to another hormone. The duration of subjective improvement was similar in patients treated with testosterone propionate and those treated with estrogens except that a greater number of patients given testosterone experienced prolonged relief (18 months or more) (Chart 4).

Soft Tissue Regression: The duration of soft tissue regression was similar in patients treated with testosterone propionate and those treated with estrogens. There was an indication, however, (Chart 5) that the improvement lasted longer in patients treated with estrogens for five to 15 months than in those treated for similar periods with testosterone propionate.

Lung Lesion Regression: The duration of lung lesion regression with both testosterone propionate and estrogens was almost identical with that of soft tissue regression. Improvement continued slightly longer with estrogens than with testosterone propionate.

Bone Lesion Regression: In patients treated for 2 to 12 months, bone lesion regression is significantly longer with the use of testosterone propionate than with estrogens. In patients treated for more than 15 months, however, the duration of improvement is much greater with estrogens.

SURVIVAL

Garland et al.[4] have reported that palliative irradiation of patients with breast cancer metastatic to bone produced a mean survival time of 12 months. Most of the cases in the present series were even farther advanced than those reported by Garland: Approximately 85 per cent of the patients in this series had lesions too widespread to be amenable to irradiation or had previously received large doses of palliative roentgen irradiation. Nevertheless, the mean survival figures shown in table 4 closely approximate those reported by Garland for his series of patients treated with irradiation. These figures represent minimal survival times since they include only patients who have died at the time this report was prepared. Many patients still under treatment have survived for longer periods.

TABLE 4.—*Relation of Improvement to Survival of Patients with Advanced Mammary Cancer*

	Mean Time: Admission to Death			
	Testosterone		Estrogens	
Location of Lesions	Not Improved, Months	Improved, Months	Not Improved, Months	Improved, Months
Soft tissue..........	7.4	11.0	7.4	13.7
Bone lesions..........	8.9	13.6	8.9	14.4
Lung lesions..........	7.6	8.7	8.4	16.5
Mean	8.5		9.8	

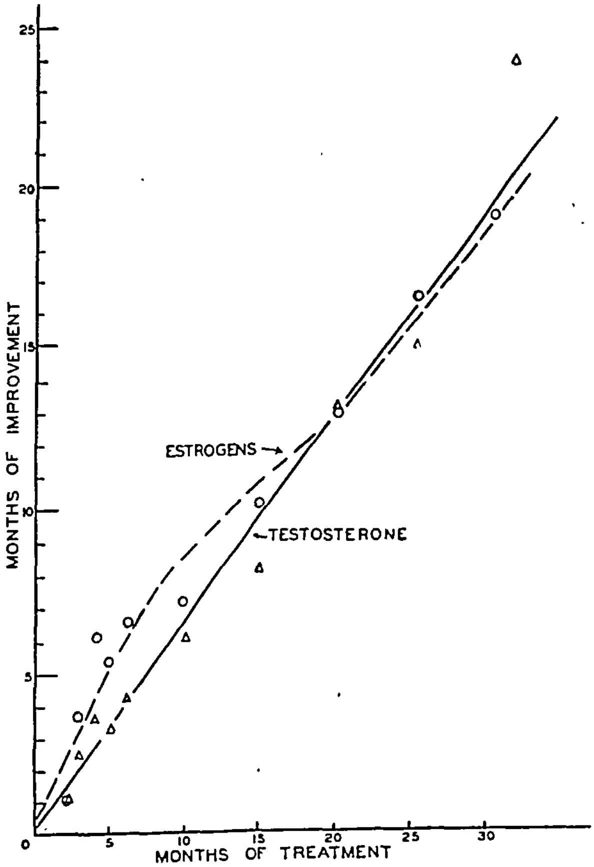

Chart 5.—Duration of soft tissue regression.

Patients aged 40 to 49 years who were treated with estrogens had a mean survival time of 7.6 months; patients aged 60 to 69 years, 9.1 months; those of 70 to 79 years, 10.6 months; and those of 80 to 89 years, 12.3 months (equal to the figure reported by Garland for patients with bone metastases). With testosterone propionate the mean survival times for patients aged 40 to 49 and aged 70 to 79 were 7.5 and 7.4 months, respectively. Thus, the older patients treated with estrogens lived longer than the younger ones, a paradox not seen in patients treated with testosterone propionate.

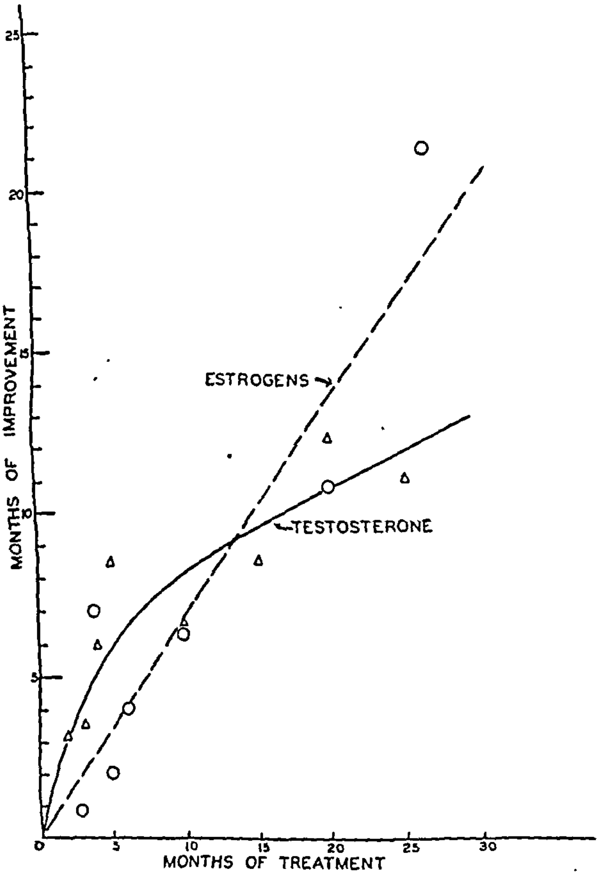

Chart 6.—Duration of bone regression.

Although it is possible that the nature and course of the disease in elderly people is different than that in younger ones, the disease being more lethal in the young, the difference in survival between the estrogen-treated and testosterone-treated patients in the older age group is significant.

That steroid therapy may prolong life is demonstrated by the comparison of survival times for improved and unimproved patients (Table 4). Patients whose condition was improved by treatment with estrogens lived nearly twice as long as those showing no improvement. Some of the differences shown in this table may be due to an automatic selection of cases. Patients showing no improvement may have been in poorer condition, had more advanced disease or may have been otherwise less satisfactory candidates for steroid therapy than those who showed improvement. This point will be subject to further study by the Committee. The fact that the survival times are measured from the admission to this study, and, further, that this point is somewhat variable with relation to the stage of the disease, introduces an uncontrolled variable into the estimate of survival times. Probably this is not too important a factor in a series as large as that under discussion.

SIDE EFFECTS

Testosterone Propionate: The large doses of testosterone employed frequently provoked unpleasant side effects, the commonest being those related to the masculinizing action of this hormone: hirsutism and deepening of the voice. An excellent discussion of these side effects has been given by Kennedy.[6] Table 5 lists the principal side effects noted and indicates that the incidence with which these effects are observed is approximately the same at all dosage levels. Not indicated in this chart is the observation that at the higher dosage levels these effects tend to be more pronounced. Furthermore, the longer the patient is treated, the more likely are these side effects to be observed.

Two side effects, edema and hypercalcemia, are potentially dangerous when present to a marked degree. Edema, observed in about one-fourth of the patients, results from salt retention. In elderly patients with lowered cardiac reserve or with preexisting cardiac impairment, this condition may precipitate cardiac failure. Such a complication has been observed in several patients in this series. At the earliest signs of edema, usually weight gain without concomitant increase in appetite or food intake, the patient should be placed on a salt-restricted diet and ammonium chloride administered. In the presence of frank edema, mercurial diuretics should be administered and the testosterone propionate should be discontinued, at least temporarily.

Spontaneous hypercalcemia is not uncommon in patients with osseous metastases, particularly if they are confined to bed. This will occur in about 10 per cent of patients.[7] However, testosterone propionate administration may also produce hypercalcemia in patients with osseous metastases. A high level of circulating ionized calcium can lead to kidney damage, central nervous system depression and may be fatal. The patient should be watched carefully during therapy and the blood calcium level determined at frequent intervals. Early signs indicating possible hypercalcemia are drowsiness, anorexia and nausea. Later signs are stupor and atonicity. Treatment by cessation of hormone therapy is usually sufficient to combat mild degrees of hypercalcemia; in the presence of severe degrees of this complication, Shorr has suggested intravenous infusion of 2.5 per cent sodium citrate in amounts sufficient to produce early, mild signs of tetany.[8] This therapy has been administered successfully to several patients in this series.

Methyltestosterone: The side effects of methyltestosterone are similar qualitatively and quantitatively to those of testosterone propionate. Liver damage has been reported in males receiving methyltestosterone.[9] One of the 17 patients administered methyltestosterone developed jaundice but no other evidence of impaired liver function after receiving 66 Gm. of the drug.

Estrogens: Table 6 lists the side effects observed with the various estrogens. Edema was fairly common during estrogen therapy. The mechanism is the same as for testosterone propionate and the same preventive measures should be employed.

Hypercalcemia, while less common than with testosterone, does occur and patients with osseous metastases should be observed carefully for this complication.

TABLE 5.—*Side Effects of Testosterone*

	75 Mg./Wk., %	150 Mg./Wk., %	300 Mg./Wk., %	600 Mg./Wk., %
Hirsutism	61	65	62	74
Incr. libido	36	27	24	19
Edema	25	29	28	23
Voice change	72	69	69	61
Bleeding	3	6	4	6
Acne	39	29	27	23
Flushing	33	22	17	16
Nausea	8	12	18	22
Vomiting	6	6	14	16
Loss of hair	6	10	4	3
Hypercalcemia	8	8	9	13

Nausea and vomiting were observed during therapy with every estrogen. This side effect frequently disappeared after two or three weeks of therapy, but occasionally was severe enough to require discontinuance of treatment. Frequently, another estrogen will be found not to give these side effects and may be substituted.

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[6] Kennedy, B. J., in Proceedings First Conference on Steroid Hormones and Mammary Cancer, American Medical Association, Chicago, April 4-7, 1949.

[7] Nathanson, I. T.: Personal communication to the Committee on Research. Adair, F. E.: Personal communication to the Committee on Research.

[8] Shorr, E.: Personal communication to the Committee on Research.

[9] Werner, S. C.; Hanger, S. M., and Kritzler, R. A.: Jaundice During Methyltestosterone Therapy, Am. J. Med. 8: 325, 1950.

Acceleration of tumor growth has been observed following hormone therapy most frequently in women treated with estrogens in the premenopausal or menopausal years. A few instances of acceleration have been observed following testosterone and progesterone therapy. This development calls for immediate cessation of hormone therapy.

HISTOPATHOLOGY OF TREATED TUMORS

Serial biopsies of accessible lesions obtained in this study have been investigated by a group of consultants in Pathology, Dr. Lauren V. Ackerman, Dr. Fred Stewart and Dr. Arthur Purdy Stout. The Armed Forces Institute of Pathology made facilities available in the American Registry of Pathology for collection and study of pathologic material submitted by the collaborating investigators. Dr. Hugh Grady, Scientific Director of the American Registry of Pathology, and his associates screened all material submitted and selected material for review.

The objective was to determine, if possible, whether the clinical effects observed were brought about by an action on the tumor cell or the stroma, or by some other mechanism which could be identified morphologically. Many of the cases were incomplete and there were very few lung and bone specimens. In no instance did the pathologist have adequate material of lesions of the lung or bone which showed prominent regression; study of such specimens might be of value.

TABLE 6.—*Side Effects of Estrogens*

	Diethylstil., %	Ethinyl Estradiol, %	Premarin, %	Estrad. Diprop., %	Dienestrol, %	Dimethyl Ether DES, %	Progesterone, %
Edema	33	32	35	50	21	17	18
Bleeding	26	15	27	59	38	31	0
Nausea	33	36	27	18	21	20	9
Vomiting	19	23	22	18	21	14	0
Pigmentation ariola	46	57	40	41	37	60	9
Pigmentation axilla	21	36	5	23	13	34	0
Hypercalcemia	3	2	5	0	0	3	0
Incontinence	10	15	11	5	4	6	0

Many of the tumors obtained from cases showing clinical improvement showed no detectable histological changes. When affected by the hormones, the gamut of degenerative and necrotic changes and the resulting fibrosis are indistingishable from comparable changes induced by irradiation. Fibrosis and production of elastic tissue which sometimes follows treatment are also comparable to similar senile changes in the skin. In some instances following steroid therapy, skin nodules were completely free of tumor and there were focal areas of absence of tumor within the breast itself. In a few instances, metastatic carcinoma within the regional axillary nodes showed complete disappearance. When the treatment produces a destructive effect on tumor tissue it does not act equally on all of the tumor but to varying degrees so that some of the tumor may be completely destroyed, some is damaged but may recover and some seems unaffected. This is best seen in mastectomies after treatment.[10] It is possible that further information concerning sequential changes in tumor prominently affected by steroids could be obtained by better timing of the biopsies of regressing cases of carcinoma of the breast in which there are numerous satellite skin nodules.

In the mastectomy specimens the mammary gland tissue seldom showed changes which could be ascribed to treatment; even with extensive degeneration necrosis and scarring of the tumor, mammary gland tissue is usually but not always unaffected. The effect on the cells might be due to vascular damage or to a direct action on the cells. Unfortunately, the limited number of cases reviewed precluded intensive study. The vascular effect does not seem to be a true infarction, since this should result in death of all tissues in a given area, which very rarely happens. A reduction in nutrition might result in the effects noted, but there is no positive evidence of this.

In almost all of the autopsy specimens the hormonal effect upon the carcinoma had ceased and the lesions were growing vigorously. Only one lung metastasis was seen which seemed to show some cell swelling and nuclear pyknosis suggesting a continued hormonal effect. None of the bone sections with tumor showed any recognizable effect on the tumor cells including a case in which the frontal bone was biopsied after very marked roentgen evidences of reossification. In this biopsy there was no histological evidence of new bone formation. If the endocrine organs in a group of autopsies were studied, further information of value might be obtained.

No definite opinion could be formed concerning the relationship of breast tumor types to hormone sensitivity nor the influence of the amount of fibrous stroma or its vascularity on the effect. There were too few cases showing any effect to make this possible. The impression was gained that neither histological type nor amount and nature of the stroma are guides to hormone sensitivity any more than they are guides to radiosensitivity.

The consultants in pathology concluded that ordinary histological techniques can throw no light on the mechanism by which the clinical effects are brought about. The development of new cytochemical techniques may open another approach to this problem.

CONCLUSIONS

1. The best curative measure for mammary carcinoma available at present is early diagnosis and radical surgical removal of the tumor and surrounding tissue.

2. Three palliative measures are available to deal with metastatic mammary cancer: surgery for localized lesions, irradiation and hormone therapy. For most osseous or soft tissue lesions, irradiation is the treatment of choice; lung lesions, and very widespread osseous or soft tissue metastases may best be treated with hormone therapy.

3. The response of lesions to testosterone propionate does not appear to depend particularly on the physiologic age of the patient, whereas, estrogen therapy is ineffective and dangerous in premenopausal patients or patients at the menopause. The effectiveness of estrogen therapy of soft tissue and lung metastases appears to increase with the age of the patient.

4. Testosterone propionate is the hormone of choice for treatment of premenopausal women regardless of site of lesions. However, it should be remembered that castration is usually more effective in the premenopausal woman, and this should be the treatment of choice if there are no contraindications. In women five years or more postmenopausal, estrogens are the hormones of choice for treatment of soft tissue and lung metastases. Although osseous lesions of postmenopausal women respond equally to testosterone propionate or to estrogens, the superiority of testosterone in controlling subjective symptoms, particularly pain, makes it appear to be the drug of choice for these metastases.

5. The location of bone metastases does not influence the response. Skin and lymph node lesions respond more frequently than do other soft tissue lesions. Abdominal metastases are reported to respond least often.

6. An effective dosage schedule of testosterone propionate appears to be 50 mg. given three times weekly. The minimum total dose is about 3 Gm. and the minimum length of therapy should be three months before concluding that a patient will not respond.

7. The minimum total dose of diethylstilbestrol, dienestrol, Premarin and the dimethyl ether of diethylstilbestrol appears to be about 4 Gm. and the minimum duration of therapy about three to six months. For ethinyl estradiol and estradiol dipropionate, the minimum total dose appears to be 200 mg. and the minimum duration of therapy from 3 to 6 months.

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[10] These mastectomy specimens were generously furnished by Dr. I. T. Nathanson of Massachusetts General Hospital.

8. For the present, it is suggested that treatment with hormones should be continued until reactivation or steady progression of the disease occurs. Cessation of therapy after reactivation may result in another regression. Change of therapy to another hormone may also bring about a second favorable response.

9. The mean duration of improvement of soft tissue lesions, treated either with testosterone or estrogen is about 10 to 12 months; for bony lesions testosterone will produce a mean duration of improvement of about 11 to 12 months whereas the mean duration of improvement with estrogen is 16 to 18 months.

10. The mean survival time after admission to this study of all patients who have died is 8.5 months for testosterone-treated patients and 9.8 months for estrogen-treated patients. Patients who showed improvement survived about twice as long as those who did not show improvement.

11. Both testosterone propionate and the estrogens, in these doses, produce unpleasant side effects in a high proportion of patients. Two side effects, edema and hypercalcemia, are dangerous and require constant observation of the patient and early corrective measures. Estrogen therapy may cause severe uterine bleeding requiring curettage. With prolonged bleeding, the possibility of endometrial carcinoma or activation of fibroids must be considered.

12. Histologic examination of biopsy and autopsy material collected in this study has not revealed any changes in tumor cells or stroma which would suggest an explanation of the mechanism of hormonal action in metastatic breast cancer. At times, however, there was complete disappearance of tumor in satellite skin nodules, in focal areas within the breast carcinoma and in occasional lymph nodes previously replaced by tumor. The changes seen both in the tumor and stromal background in the cases responding to steroid therapy are comparable to the effects of irradiation.

COUNCIL ON FOODS AND NUTRITION

The following statements have been adopted by the Council on Foods and Nutrition for publication.

JAMES R. WILSON, M.D., *Secretary.*

WHOLESOME FOOD

The purpose of examining the concept of a wholesome food is to reemphasize the necessity for appraising all chemical technologic aids before they are used in connection with the growth, storage, preparation, or final processing of foods.

It long has been recognized that nutritional status is closely related to the quality of food eaten. It also has been recognized that wholesome foods must be clean and free from extraneous matter that may be incorporated as the result of careless or uncleanly methods of growth, storage or processing. Although micro-organisms which contribute to the value of a food may be incorporated intentionally or accidentally, disease-producing organisms have no place in foods intended for human consumption.

Although these basic concepts have acquired general recognition, the development recently of a large number of chemical technologic aids has emphasized the necessity for reexamining our idea of a wholesome food, particularly from the point of view of its freedom from chemical additives which may be harmful to the consumer because of toxicologic effects or because their incorporation in food causes or makes possible the reduction of nutritive value. For this reason the following short definition is offered:

A wholesome food is a product which makes a significant contribution to human dietary requirements and which is clean and free from micro-organisms and chemical additives of such quality or in such quantities that they may be directly injurious or result in reduced nutritional quality.

THE USE OF ALUMINUM COOKING UTENSILS IN THE PREPARATION OF FOODS

Periodically rumors are circulated to the effect that foods cooked in aluminum cooking utensils are deleterious to health because of injurious substances imparted by the vessel. Thus it becomes necessary to again call attention to pertinent facts about aluminum.

Aluminum abounds in the earth's crust and is widely distributed in nature being present in a wide range of edible plants. Undoubtedly man has ingested small quantities of aluminum daily since he came upon the earth. Aluminum compounds are also important and useful therapeutic agents.

The possibility that aluminum utensils can impart injurious agents to the foods cooked in them has been extensively investigated. Up to the present time there has been no cogent scientific evidence indicating that the minute traces of aluminum that may be imparted to food in the process of cooking are in any way injurious to the consumer. As for the rumor that the use of food prepared in aluminum cooking utensils is a factor in the causation of cancer, it may be added also that there is absolutely no scientific basis in support of this view.

In view of these facts it is the opinion of the Council that the use of aluminum cooking utensils is in no way injurious to health.

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council. JAMES R. WILSON, M.D., *Secretary.*

H. J. Heinz Company, Pittsburgh

HEINZ STRAINED SWEET POTATOES. Ingredients: Sweet potatoes, salt and water to prepare.

Analysis (submitted by manufacturer).—Total solids 14.56%, moisture 85.44%, ash 0.78%, fat (acid hydrolysis) 0.20%, protein (N × 6.25) 0.81%, crude fiber 0.61%, carbohydrates other than crude fiber (by difference) 12.16%, total sugar (as sucrose) 5.77%.

Vitamins and Minerals	Per 100 Gm.
Vitamin A activity	4360 I.U.
Thiamine	0.026 mg.
Riboflavin	0.024 mg.
Ascorbic acid	4.8 mg.
Nicotinic acid	0.230 mg.
Calcium	21.0 mg.
Phosphorus	30.0 mg.
Iron	0.25 mg.
Copper	0.12 mg.
Salt	400 mg.

Calories.—0.54 per gram; 15 per ounce.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

Reid Murdoch & Company, Division of Consolidated Grocers Corporation, Chicago.

MONARCH BRAND DIETETIC PACK GRAPEFRUIT SECTIONS consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 7.0%, fat (ether extract) 0.7%, protein (N × 6.25) 0.6%, ash (minerals) 0.4%, sodium 8.6 mg./100 Gm., potassium 151 mg./100 Gm.

Calories.—0.35 per gram; 9.9 per ounce.

Use.—For use in calory-restricted, low sodium and other therapeutic diets.

MONARCH BRAND DIETETIC PACK BLACK RASPBERRIES consists of the fruit itself, packed in water without any added sugar or salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 9.0%, fat (ether extract) 1.0%, protein (N × 6.25) 1.1%, ash (minerals) 0.4%, sodium 0.44 mg./100 Gm., potassium 111 mg./100 Gm.

Calories.—0.50 per gram; 14.2 per ounce.

Use.—For use in calory-restricted, low sodium and other therapeutic diets.

MONARCH BRAND DIETETIC PACK SWEET GREEN PEAS consists of the vegetable itself, packed in water without any added salt.

Analysis (submitted by manufacturer).—Available carbohydrates (total carbohydrate minus crude fiber) 9.0%, fat (ether extract) 0.4%, protein (N × 6.25) 4.0%, ash (minerals) 0.3%, sodium 3.0 mg./100 Gm., potassium 78 mg./100 Gm.

Calories.—0.57 per gram; 16.2 per ounce.

Use.—For use in low sodium and other therapeutic diets.

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1951 CLINICAL SESSION TO BE HELD IN LOS ANGELES

Because of conflicting meetings, the unavailability of the Coliseum, and other considerations, the 1951 Clinical Session will be held in Los Angeles instead of in Houston, as originally planned. The action was taken on the recommendation of the Local Medical Committee on Arrangements and the Texas State Medical Association. Los Angeles was selected by unanimous vote of the Board of Trustees. The dates will remain unchanged—December 4-7, inclusive. The scientific exhibits will be in the Shrine Convention Hall.

ACUTE PHOSPHORUS POISONING

The diagnosis, symptoms and treatment of acute yellow phosphorus poisoning are discussed in a recent article by Diaz-Rivera and co-workers.[1] The presentation is based on data gathered from 56 cases of poisoning. Opportunity for studying such a large series of cases was attributed by the authors to the frequent attempts at suicide with phosphorus-containing rodenticidal pastes among Puerto Ricans. It is known that as little as 15 mg. of yellow phosphorus may produce severe toxic effects, while the fatal dose is generally considered to be about 100 mg. In a series studied by Diaz-Rivera and his colleagues, the estimated amount of phosphorus ingested ranged from 0.19 to 6.30 Gm., the average being 1.13 Gm. In five patients who ingested an average of 2.5 Gm. the course of action of the poison was fulminating, the patients dying within 12 hours from peripheral vascular collapse. Nine patients who ingested an average of 1.28 Gm. survived 13 to 24 hours. In the majority of these patients, restlessness, delirium and periods of toxic psychosis were manifest before death. All were intensely thirsty and suffered from severe nausea and vomiting, the vomitus frequently being bloody. Hepatomegaly developed in a few, but none were jaundiced. Five patients who had ingested approximately 1.5 Gm. did not die until the second day of illness. In addition to restlessness, emesis and delirium, hepatomegaly developed in all these patients and some became jaundiced. In many there was azotemia and oliguria. Terminally, the blood pressure reached shock levels. Two patients who had ingested 1.57 Gm. survived two to three days. Jaundice and oliguria developed in both, and their urine contained albumin and hyaline casts. Myocardial damage, thought to be the cause of death, was demonstrated by electrocardiographic studies. Of the remaining 35 patients who had ingested comparatively moderate amounts, 29 recovered, the others surviving at least five days. In the milder cases, symptoms appeared within 48 hours and included nausea, anorexia, epigastric pains and disagreeable taste in the mouth. Vomiting and constipation were not unusual. In others, severer manifestations developed within four to five days and consisted of severe vomiting, jaundice, hemorrhagic tendencies due to hypoprothrombinemia, oliguria and azotemia. Terminal manifestations included restlessness and toxic psychosis. It was noted that in some cases hyperphosphatemia developed after the fourth day. It was suggested that the phosphorus was initially promptly fixed by the body tissues, especially bone, and that with changes in acid-balance it was discharged into the circulation. This might explain the late manifestations of severe toxicity observed in some of the patients. The authors feel that, in acute phosphorus poisoning, immediate deaths are caused by peripheral vascular collapse, due either to a direct or an indirect effect on the cardiovascular system. With longer periods of survival, renal damage becomes manifest, while late deaths may be due to the combination of hepatic, renal and cardiac failure.

Treatment was directed at removal of the poison from the stomach by gastric lavage with potassium permanganate, prevention of further absorption by purgation with castor oil and general supportive measures designed to protect the organs most severely affected when absorption has taken place. Such measures included intravenous dextrose; high protein, high carbohydrate, and low fat diet; vitamin B complex, and crude liver extract. Five patients were given methionine, most of which, however, was lost through vomiting. Twenty-four patients received dimercaprol with poor results. Blood transfusions were considered contraindicated because of the fear that they might overload an already deficient circulation. The authors conclude that the deaths due to peripheral vascular collapse or to acute heart failure were unavoidable. They feel, however, that renal changes are due to disturbances in renal blood flow caused by the low systemic blood pressure and are as a rule reversible. Hence treatment of acute yellow phosphorus poisoning should be directed toward restoring the systemic blood pressure among those suffering from shock and toward obtaining proper hydration.

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[1] Diaz-Rivera, R. S.; Collazo, Pedro J.; Pons, E. R., and Torregrosa, M. V.: Medicine 29: 269 (Dec.) 1950.

ANTIBIOTICS AND GROWTH

One of the notable achievements of the past few years has been the development of a number of new antibiotics, which have considerably strengthened the physician's armamentarium for the control of various bacterial infections. It is interesting to learn, however, that the value of antibiotics may extend beyond their original significance as bacteriostatic agents. The newly discovered property of growth promotion in experimental animals may become as important to man as the antibiotic property for which these substances were originally developed.

The discovery that certain antibiotics act as growth stimulants in animals dates back several years, particularly to the incidental observation in 1946[1] that chicks given streptomycin grew at a somewhat faster rate than untreated controls. This unexpected result received little attention until, in 1949, another group of investigators,[2] studying the effects of the then recently isolated vitamin B_{12} on the growth of chicks, found that chicks given a crude concentrate of vitamin B_{12} grew at a more rapid rate than chicks given the pure, crystalline vitamin. At the time, the results were interpreted as suggesting that vitamin B_{12}, or at least the "animal protein factor," was multiple in nature. The crude concentrate of vitamin B_{12} in question was prepared from cultures of Streptomyces aureofaciens; subsequent chemical fractionation of this material, however, finally yielded a yellow crystalline compound, totally different from vitamin B_{12} but extremely active in promoting growth. The crystalline material showed the physical and chemical properties of aureomycin, one of the newer antibiotics. Subsequent studies with known pure crystalline aureomycin demonstrated that this substance was responsible for the observed growth stimulation.[3] In rapid succession a number of other investigators confirmed the growth-promoting effect of crystalline aureomycin in chicks and also in a number of other species, including pigs, rats, turkeys and cattle. Also, it was soon shown that several other antibiotics, including penicillin, streptomycin, chloramphenicol and terramycin, exert similar favorable effects on growth.

The mode of action of the various antibiotics in accelerating growth has not yet been established. One explanation would appear to be that they alter the intestinal flora, perhaps decreasing the number of bacteria having some possible deleterious effect on the growth of the host organism and increasing the micro-organisms that are favorable to the growth of the host. The latter micro-organisms are believed to function by way of the synthesis of certain vitamins or perhaps other substances beneficial in supplementary amounts to the growth of the host organism. However, investigations showing that parenterally administered or partially inactivated antibiotics still exhibit growth-promoting activity suggest that the antibiotics per se may be responsible for the observed acceleration of growth. This problem remains to be solved.

The widespread importance of the foregoing observations is at once apparent. Already commercial poultry and stock feeds enriched with various antibiotics or their concentrates are on the market. Poultry and stock growers are claiming a resulting average increase in growth of approximately 30 per cent over other animals fed the usual well balanced rations. The significance of this fact in terms of an increased supply of meat and poultry and, in turn, of probable lower prices and better protein nutrition for a larger portion of our population is obvious.

The implications of the foregoing work may extend even further than immediate practical applications. For example, a recent claim appeared in the literature[4] that aureomycin produced a definite hematologic response and improvement in five cases of Addisonian pernicious anemia. The beneficial effect of the antibiotic was attributed to its effect on the intestinal flora. While this study is obviously preliminary in nature and must be adequately confirmed before conclusions are warranted, it nevertheless points to another important potential usefulness of the antibiotic agents to man. Likewise, the observation again emphasizes the importance of normal gastrointestinal function to the health and well-being of the individual.

EXPERIMENTAL TELEVISION PRODUCTION PACKETS

The medical profession is examining the problem of educational employment of television, the latest medium for communicating with the public. The success of medical telecasts on closed circuits sponsored by commercial firms interested in medical progress has been well demonstrated. Telecasting of medical subjects to the public requires a considerably different approach.

Television is a costly medium because of expensive equipment, large personnel requirements and the need for a great deal of space, both for rehearsal and production. The number of available television channels is limited, and no channels have been assigned for educational broadcasting. Because of the high cost of the medium, stations are much more reluctant to offer free time for educational features than has been the case with radio, which is a much less costly medium.

In addition, the preparation of telecasts involves an appreciation of the fact that, while television has some of the aspects of the theater, some of the movies and some of radio, it is in fact not merely a combination of these but a new medium with new characteristics, new techniques and a new language. The Bureau of Health Education, under special authorization from the Board of Trustees, has prepared a television manual which is available without cost to county medical societies on request. This has been prepared by television experts under the supervision of the Bureau. In addition, the Bureau recently telecast a program, "Dr. Webb of Horseshoe Bend," which was kinescoped (a kinescope is a film reproduction of the original telecast with sound), and the kinescopes have since been shown in 45 of a possible 65 television communities and have been well received. This telecast was costly.

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[1] Moore, P. R.; Evenson, A.; Luckey, T. D.; McCoy, E.; Elvehjem, C. A., and Hart, E. B.: J. Biol. Chem. **165**: 437, 1946.

[2] Stokstad, E. L. R.; Jukes, T. H.; Pierce, J.; Page, A. C., and Franklin, A. L.: J. Biol. Chem. **180**: 647, 1949.

[3] Stokstad, E. L. R., and Jukes, T. H.: Proc. Soc. Exper. Biol. & Med. **73**: 523, 1950.

[4] Lichtman, H.; Ginsburg, V., and Watson, J.: Proc. Soc. Exper. Biol. & Med. **74**: 884, 1950.

Another approach to the television problem is to make available to local societies the materials for conducting a local telecast. This has been done by the Bureau in the form of television production packets. Each packet consists of an adequate supply of scripts plus lists of "properties" which must be assembled plus the necessary titles and explanatory material either on charts or film strip. These packets are available to local medical societies without cost. There are 12, each dealing with one of the following subjects:

1. School Health Examination
2. Home Care of the Sick
3. Cause of Backaches
4. First Aid
5. Snake Venoms and Antivenins
6. Safeguarding Children's Eyesight
7. Child Care
8. Preventive Medicine
9. Blood Pressure
10. The Human Heart
11. Slowing Down in Middle Life
12. Cancer

There are only three ways in which television can be made available to the medical profession as a tool for health education: (1) the kinescope, prepared and distributed by the American Medical Association and placed locally by county societies; (2) the telecast package, as above described, which will require more local preparation, and (3) sponsored broadcasting on the networks. All these possibilities are being explored.

The Bureau urgently requests all local medical societies to consider carefully the possibility of engaging in telecasting. The Bureau also solicits frank comments as to the local evaluation of materials made available. Television is in itself a new medium. Successful employment depends on free interchange of information and suggestions.

A NEW NITROGEN MUSTARD CONGENER IN CANCER CHEMOTHERAPY

During the past nine years the nitrogen mustard methyl-bis(beta-chloroethyl)amine (HN_2) has found a definite place in the treatment of malignant lymphomas, certain blood dyscrasias and inoperable bronchogenic carcinoma. Efforts have been made to discover a congener of nitrogen mustard that would be more effective against malignant cells and less toxic to normal cells. Recently, a new compound has been studied in the laboratory[1] and the clinic[2] which has certain advantages over nitrogen mustard HN_2 and which offers the possibility of extending the usefulness of this type of chemotherapy.

The new compound has already acquired several synonyms: triethylene melamine, TEM, and 2,4,6-triethyleneimino-*s*-triazine. It was first synthesized in Germany and used there in a commercial process for improving the finish of rayon fabrics. The chemical relationship of triethylene melamine to methyl-bis(beta-chlorethyl)amine led to the cancer chemotherapeutic investigations of the compound in England and America.

The experimental studies revealed that triethylene melamine had cytotoxic actions on normal and neoplastic cells that were qualitatively similar to the nitrogen mustards. It was further noted that the compound was active when given by mouth to experimental animals. This major advantage of triethylene melamine over the nitrogen mustard HN_2 has been demonstrated to apply to man also. The careful clinical evaluation of triethylene melamine by Karnofsky and his associates at the Memorial Center for Cancer and Allied Diseases and the report by Wright and co-workers at the Harlem Hospital have shown not only that the drug can be effectively administered by mouth but that the incidence and severity of nausea and vomiting produced is significantly less than occur with injection of nitrogen mustard. Triethylene melamine can also be given intravenously and may eventually replace methyl-bis(beta-chloroethyl)amine because of the less distressing gastrointestinal symptoms. The clinical studies indicate that triethylene melamine produces remissions in diseases that respond to nitrogen mustard and also causes leukopenia and thrombopenia completely analogous to the depressions observed after intravenously administered nitrogen mustard. The peculiar asset of the drug lies in its effectiveness after oral administration. This makes possible ambulatory management of patients and greatly facilitates the investigation of maintenance dose therapy to prolong remission intervals. Although it has not yet been conclusively demonstrated that long term treatment with small doses of triethylene melamine curtails the frequency of exacerbations in the malignant lymphomas, the evidence from Karnofsky's studies is encouraging.

Triethylene melamine will almost surely merit inclusion among the drugs available for the palliation of neoplastic diseases. The investigators who have studied this compound clearly point out, however, that the drug is effective against the same malignant diseases that respond to methyl-bis(beta-chloroethyl)amine and also that the depression of bone marrow function is similar after the administration of either agent. This emphasizes the specificity of cellular site and mechanism of action of the nitrogen mustards and triethylene melamine; these agents are related to each other, in that they both contain ethylenimino groups. On the basis of the experience with triethylene melamine and the many nitrogen mustards that have been studied in the laboratory, it may reasonably be concluded that the entire group is toxic to normal as well as to neoplastic cells.

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[1] Rose, F. L.; Hendry, J. A., and Walpole, A. L.: New Cytotoxic Agents with Tumor-Inhibitory Activity, Nature **165**: 993 (June 24) 1950. Lewis, M. R.. and Crossley, M. L.: Retardation of Tumor Growth in Mice by Oral Administration of Ethylenimine Derivatives, Arch. Biochem. **26**: 319, 1950. Burchenal, J. H.; Johnston, S. F.; Cremer, M. A.; Webber, L. F., and Stock, C. C.: Chemotherapy of Leukemia: V. Effects of 2,4,6,-Triethyleneimino-*s*-Triazine and Related Compounds on Transplanted Mouse Leukemia, Proc. Soc. Exper. Biol. & Med. **74**: 708 (Aug.) 1950.

[2] Karnofsky, D. A.; Burchenal, J. H.; Armistead, G. C., Jr.; Southam, C. M.; Bernstein, J. L.; Craver, L. F., and Rhoads, C. P.: Triethylene Melamine in the Treatment of Neoplastic Disease: A Compound with Nitrogen-Mustard-like Activity, Suitable for Oral and Intravenous Use, Arch. Int. Med. **87**: 477 (April) 1951. Rhoads, C. P.; Karnofsky, D. A.; Burchenal, J. H., and Craver, L. F.: Triethylene Melamine in the Treatment of Hodgkin's Disease and Allied Neoplasms, Tr. Am. College Phys. **63**: 136, 1950. Wright, L. T.; Wright, J. C.; Prigot, A., and Weintraub, S.: Remissions Caused by Tri-Ethylene Melamine in Certain Neoplastic Diseases, J. Nat. M. A. **42**: 343, 1950.

ORGANIZATION SECTION

THE STATE JOURNAL ADVERTISING BUREAU

The State Journal Advertising Bureau, formerly the Cooperative Medical Advertising Bureau, serves 34 state medical journals, which are members of the bureau. These journals represent 42 state medical associations:

- Alabama, Journal of Med. Assn. of
- Arizona Medicine
- Arkansas Med. Society, Journal of
- Connecticut State Med. Journal
- Delaware Med. Journal
- District of Columbia Med., Annals of
- Florida Med. Assn., Journal of
- Georgia, Journal of Med. Assn. of
- Hawaii Med. Journal
- Indiana State Med. Assn., Journal of
- Iowa State Med. Soc., Journal of
- Kansas Med. Soc., Journal of
- Kentucky Med. Journal
- Maine Med. Assn., Journal of the
- Michigan State Med. Soc., Journal of
- Minnesota Medicine
- Missouri State Med. Assn., Journal of
- Nebraska State Med. Journal
- New England Journal of Med. (Mass., New Hamp.)
- New Jersey, Journal of Med. Soc. of
- New Orleans Med. and Surgical Journal
- North Carolina Med. Journal
- Northwest Medicine (Oregon, Washington, Idaho & Alaska)
- Ohio State Med. Journal
- Oklahoma State Med. Assn., Journal of
- Pennsylvania Med. Journal
- Rocky Mountain Med. Journal (Colo., Mont., New Mex., Utah, Wyo.)
- South Carolina Med. Assn., Journal of
- South Dakota Journal of Med.
- Tennessee State Med. Assn., Journal of
- Texas State Journal of Med.
- Virginia Med. Monthly
- West Virginia Med. Journal
- Wisconsin Med. Journal

Membership in the State Journal Advertising Bureau is limited to official publications of state medical societies which must adhere to the advertising standards adopted by the advisory committee for the bureau.

The bureau was established in 1913 by the Board of Trustees of the American Medical Association to assist state medical journals in securing revenue through the sale of advertising space in the journals. This assistance has provided substantial support for the state publications. For example, 1941 net sales were $151,823, while present indications for 1951 suggest a figure exceeding $641,000. On this basis, the gross sales will reach, or perhaps exceed, the $700,000 mark, a sum which should help much to defray the expenses of the member journals. The increase of the volume of business indicates clearly the value of the service provided by the bureau.

REGULATIONS FOR DIATHERMY EQUIPMENT

The office of the Council on Physical Medicine and Rehabilitation of the American Medical Association wishes to draw attention to certain regulations for medical diathermy equipment. There appeared in THE JOURNAL of Sept. 6, 1947, under the proceedings of the Council on Physical Medicine and Rehabilitation, Public Notice No. 7722, entitled "Order with Respect to Medical Diathermy and Industrial Heating Equipment and Notice of Proposed Rule Making with Respect to Miscellaneous Equipment" of the Federal Communications Commission. This document assigns three frequencies, in harmonic progression, for medical diathermy and industrial heating. The channels reserved are 13.66, 27.33 and 40.98 megacycles, corresponding to approximately 22, 11 and 7½ meters wavelength, respectively. The widths of the channels are approximately 15, 320 and 40 kilocycles, respectively. Another channel has been assigned, namely, 2,450 megacycles, corresponding roughly to 12.2 cm. wavelength. Frequencies of 915, 5,850, 10,600 and 18,000 megacycles have also been allocated for industrial, scientific and medical use.

Under these rules, apparatus either in use or manufactured prior to July 1, 1947, are exempt from the provisions of the rules for a period of five years. From July 1, 1947, provided no serious interference results from the operation of such equipment, it provides that the medical profession can continue to use uncontrolled short-wave diathermy until 1952, if the equipment does not cause serious interference. After that date the users of such equipment, old or new, must obtain approved apparatus according to the law.

The Council on Physical Medicine and Rehabilitation has on its accepted list diathermy equipment which not only meets the requirements of the Council but also carries the "type-approval" of the Federal Communications Commission. Although a year remains before the law goes into effect, the shortages of materials at the present time make it difficult for the manufacturers to provide diathermy equipment to meet the demand. The placing of orders immediately would seem advisable.

Uncontrolled short-wave diathermy apparatus cannot be changed economically to meet the rules and regulations of the Federal Communications Commission. It is possible for a qualified engineer to redesign the equipment, but the cost of labor and materials and the expense of having a representative of the Federal Trade Commission or an authorized engineer to examine it would be more than would be involved in the purchase of a new apparatus from a reliable manufacturer. A redesigned appliance must operate on one of the assigned frequencies, and the frequency must stay within the limits of tolerance under the influence of varying loads. Furthermore, the harmonic radiations should be suppressed to within the prescribed 25 microvolts per meter at a distance of a thousand feet. The radiation from an unaccepted powerful diathermy apparatus in the immediate vicinity will cause havoc in reception of television programs.

It is hoped that the critical shortage of materials will not be so great that the National Production Authority will be obliged to deprive the manufacturers of diathermy of the necessary supplies to meet the need.

MEDICAL LEGISLATION

FEDERAL

Physically Handicapped Children's Education

Senator Hill of Alabama introduced S. 1463, for himself and eight other senators. It would enable the states to make more adequate provision for special services required for the education of physically handicapped children of school age. The term "physically handicapped children" means children of school age who are crippled, blind, partially seeing, deaf, hard of hearing, defective in speech, tuberculous, epileptic, cardiopathic, or otherwise physically handicapped to such an extent that they require special services for their education. The services proposed would be designed to parallel the work being done now for crippled children under the Social Security Act.

The bill calls for an appropriation of 4 million dollars for the fiscal year ending June 30, 1952; 8 million for the fiscal year ending in 1953; 12 million for the fiscal year ending in 1954; 16 million for the fiscal year ending in 1955, and a like sum annually thereafter. These funds would be used to provide assistance to the several states to enable them to establish and develop special education services. The federal assistance would be allotted among the states on a formula in which per capita income and the number of school age children would be factors. For any state, the federal percentage could not exceed 75% nor be less than 33⅓%. States receiving federal assistance would be required to conform to minimum standards set forth in the bill. The sufficiency of state plans would be determined by the commissioner of education of the Federal Security Agency. A state would not be eligible for federal contribution for any year if the amount made available by the state and its subdivisions is less then their average expenditure for special services to the physi-

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The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

cally handicapped in the period 1947 to 1949. Expenditures of a state or its subdivisions for the purchase, maintenance, repair or rental of real estate could not be counted toward its share of the total expenditure for the program.

VA Benefits for Korea Veterans

Senate Joint Resolution 72 was introduced by Senator George of Georgia, for himself and four other senators. It provides that veterans serving on or after June 27, 1950, would be entitled to benefits of medical and hospital care, compensation, and pensions which were provided veterans of World War II. This resolution was introduced and passed by both Houses of Congress on May 10 and was signed by the President May 11, becoming Public Law No. 28. A dozen bills offering to provide similar benefits have been pending in Congress. The publication of the incident of a Korea veteran being denied hospital treatment brought this immediate action.

STATE

California

Bills Introduced.—A. 1504, to amend the Welfare and Institutions Code, proposes the addition of regulations relating to **epileptic persons** and would provide that such persons could be committed to state hospitals when they are in need of treatment or when they are suffering additionally from mental illness. A. 1579, to amend the Business and Professions Code, proposes that the regulations relating to the sale of drugs, chemicals, and medicines shall not apply to the sale of, among other things, sterilized sutures, **hypodermic needles and syringes**, medicinal gases, ether, chloroform, and ethyl chloride, injectable anesthetics of the procaine series, sulfa creams, ointments, and jellies used for introduction into the vaginal tract, where such sale is made to a physician, dentist, chiropodist, veterinarian, pharmacist, medical technician, or medical technologist, to a clinic, hospital, or other similar institution, or to an exporter.

Bills Enacted.—A. 71 has become Chapter 185 of the Laws of 1951. It amends the Business and Professions Code by establishing regulations relating to the **reinstatement of licenses** by persons serving in the armed forces. A. 1211 has become Chapter 143 of the Laws of 1951. It eliminates from the Business and Professions Code provisions relating to **midwives.** It also permits hospitals to appoint a graduate of an approved school as a resident or assistant resident for postgraduate training. A. 2674 has become Chapter 235 of the Laws of 1951. It amends the Business and Professions Code by making it a misdemeanor for an unlicensed person to **use the word "doctor,"** the letters or prefix "Dr.," the letters "M.D.," or any other term or letters indicating or implying that he is a physician, on any business card or letterhead. A. 2675 has become Chapter 318 of the Laws of 1951. It amends the Business and Professions Code by providing that applicants for the **physician's and surgeon's examination** graduating from school after Jan. 1, 1955, must present evidence of having completed a three year resident course of college grade, including the subjects of physics, chemistry, and biology, before commencing the study of medicine. A. 2676 has become Chapter 236 of the Laws of 1951. It amends the Business and Professions Code by providing that the adjudication of insanity or mental illness or the voluntary commitment or admission to a state hospital of any licentiate for a mental illness shall operate as a **suspension of the right to practice his profession** and such suspension shall continue until restoration to or declaration of sanity or mental competence. A. 2677 has become Chapter 237 of the Laws of 1951. It amends the Business and Professions Code relating to the subjects of examination for a physician's and surgeon's certificate by eliminating materia medica, pharmacology, and therapeutics and substituting therefore **pathology—gross and microscopic.** A. 2678 has become Chapter 238 of the Laws of 1951. It amends the Business and Professions Code by providing that every physician who, while in actual attendance on patients, is **intoxicated** to such an extent as to impair his ability to conduct the practice authorized by his certificate with safety to the public and his patients, shall be guilty of a misdemeanor. A. 2679 has become Chapter 239 of the Laws of 1951. It amends the Business and Professions Code relating to applicants for a physician's and surgeon's certificate whose application is based on a diploma from a **foreign medical school** by providing that in lieu of a one year internship in a hospital approved by the board, the applicant may have completed his final year of medical instruction in an approved medical school in the United States. S. 1602 has become Chapter 298 of the Laws of 1951. It authorizes the board of medical examiners to grant approval of the employment of **physicians and surgeons on a salary basis** by licensed charitable institutions, foundations, or clinics or by approved medical schools operating clinics therewith, if no charge for professional services rendered to patients is made by the institution.

Florida

Bills Introduced.—H. 520, proposes to authorize the Florida State Board of Health to make use of the **injunctive process** to restrain or prevent the violation of any statute of which the board is charged with the enforcement. H. 526, proposes that **expert witnesses** who have testified in court shall be allowed a witness fee in such reasonable amount as the trial judge may determine and that the amount of such fee shall be taxed as costs in the case. H. 579 proposes to require physicians to **register annually** with the State Board of Health. H. 635 and S. 543 propose to authorize the superintendent of any institution under the direction of the Board of Commissioners of State Institutions, when medical and dental personnel is needed but cannot be obtained in the state, to employ competent, **experienced, medical or dental personnel** from outside of the state. Such personnel would not be required to be examined and licensed to practice their profession, so long as they are engaged exclusively on the medical or dental staff of such institution and do not engage in private practice within the state. S. 492 and H. 605 propose that either the state attorney or the county solicitor may have **autopsies** performed on dead bodies found within the county, before internment, whenever in the opinion of such person such autopsies are necessary to ascertain whether death resulted from a criminal act or as the result of criminal negligence. The proposal would also provide that the reasonable charges of physicians performing such autopsies should be paid from the County General Fund.

Bills Enacted.—H. 90 became law without approval May 9, 1951. It amends the medical practice act by requiring applicants for a license to be **citizens of the United States.** (Previously it was permissable for them to show that they had filed a declaration of intention to become a citizen.) It also permits the board to accept evidence from the applicant that he has received training in hospitals sufficient to bring his medical education up to a standard equivalent to that of graduates of approved medical schools in the event that the applicant is not such a graduate. H. 91 became law without approval May 9, 1951. It amends the medical practice act by authorizing the board to pass on the **good standing and reputability of any hospital** and to determine those that maintain a standard of training sufficient to be recognized by the board when considering medical examinations given by the board. H. 93 became law without approval May 9, 1951. It amends the medical practice act by providing that when a person has been adjudicated insane he shall be deemed **disqualified to practice medicine** so long as such adjudication shall remain in full force and effect. H. 94 became law without approval May 9, 1951. It amends the **medical practice act** by exempting therefrom optometrists and pharmacists duly licensed by their respective state boards and also persons furnishing medical assistance in case of emergency. The law further sets forth regulations relating to the registration of every graduate of a medical school and every person practicing as a resident physician, assistant resident physician or intern in any hospital in the state. No person is permitted to be employed or act as a resident physician, assistant resident physician, or intern who has not so registered. H. 96 became law without approval May 9, 1951. It provides that a **certificate by the board of medical examiners**, board of osteopathic medical examiners, board of chiropractic examiners, board of naturopathic examiners, board of optometry, board of examiners for nurses, board of pharmacy, or board of dental examiners, certifying that the records of such board evidence, or fail to evidence, the issuance of any license to practice any of such professions shall be admissible in all courts and may be impeached only by positive documentary evidence or testimony of not less than two witnesses.

Illinois

Bills Introduced.—H. R. 65, proposes the creation of a committee to investigate the need for and the desirability of a state institution for **narcotic addicts.** H. 872, proposes to authorize the Department of Registration and Education to license persons desiring to practice **physiotherapy,** which is defined as the method, art, or science of treating the human body for hygienic or remedial purposes by the following methods: massage and manipulations with the hands or with any other physiotherapy modality, and the use of such adjuncts as light, heat, air, water, diet, gymnastics, and electricity. S. R. 53, proposes the creation of a committee to make an investigation relating to the establishment of a hospital in Chicago for the treatment of acute mental patients, especially those addicted to the habitual use of **narcotics and alcohol.**

Massachusetts

Bills Introduced.—H. 2455, proposes regulations for the licensing of persons desiring to conduct a **dispensary.** H. 2468, proposes to authorize the Board of Registration in Medicine to issue licenses and to regulate the practice of **physical therapy,** which is defined to mean the treatment of any bodily or mental condition of any person by the use of the physical, chemical, and other properties of heat, light, water, electricity, massage, and active and passive exercise. The use of roentgen rays and radium for diagnostic and therapeutic purposes and the use of electricity for surgical purposes, including cauterization, would not be permitted under the proposal.

Bill Enacted.—H. 2310 has become Resolution Chapter 11 of the Laws of 1951. It directs the Judicial council to investigate relative to the existing statutes relating to **alcoholism.**

Texas

Bill Enacted.—H. 47, was approved May 3, 1951. It provides for the creation of a **board of vocational nurse examiners** and defines a licensed vocational nurse as a person who directly attends or cares for the sick for compensation or hire, and whose personal qualifications, preliminary education, or nursing education in biological, physical, and social sciences will not qualify that person to become certified as a professional registered nurse.

Vermont

Bill Enacted.—S. 39, was approved April 27, 1951. It eliminates from membership on the **state board of medical registration** the two homeopathic physicians who were previously required to be members thereof.

Wisconsin

Bill Enacted.—S. 374 has become Chapter 120 of the Laws of 1951. It authorizes the board of medical examiners to issue licenses to practice medicine and surgery or osteopathy and surgery and to accept, in lieu of its own examination, the certificate of the **national board of medical examiners.**

MEDICAL NEWS

COLORADO

Annual Alumni Session.—The Medical Alumni Association of the University of Colorado School of Medicine, Denver, will hold its 26th annual session on June 1-2. The annual senior-alumni baseball game and annual banquet climax the two-day meeting. The second annual Colorado Intern-Resident Clinics on June 4-5 have been arranged by an intern-resident committee. Dr. Robert M. Zollinger, professor and chairman of the department of surgery at Ohio State University College of Medicine, Columbus, will be the guest surgeon and lecturer and will deliver the second annual intern-resident lecture on "Recent Advances in Burn Therapy." The afternoon sessions will consist of 18 papers by the resident staff.

CONNECTICUT

Summer School of Alcohol Studies.—The ninth annual session of the summer school of alcohol studies will be held at Yale University July 7-Aug. 3 under the direction of Selden D. Bacon, director of Yale's section on alcohol studies. Registration for this year's session will take place July 7-8 with the first lecture and a reception planned for the night of July 8. Dr. Howard W. Haggard, director, Yale Laboratory of Applied Physiology, will be the initial speaker. The curriculum is divided into four phases and consists of 62 lectures, 15 hours of seminars, informal group meetings, visits to the laboratory, clinic and other facilities, and individual consultations with staff members. The four major divisions of the curriculum are: (1) orientation, with emphasis on scientific methods as applied to problems of alcohol; (2) physiology, psychology and cultural sociology in relation to alcoholic beverages; (3) the major problem areas, and (4) description and analysis of responses to these problems. Since the school's inception in 1943 over 1,160 persons have completed the course. Students from every state in the United States, most of the Canadian provinces, and countries in Central and South America, Europe and the Orient are among the graduates. Academic credit for students can be obtained through arrangement with the degree-granting authority of the institution with which the student is registered. Correspondence should be addressed to: Summer School of Alcohol Studies, Laboratory of Applied Physiology, Yale University, 52 Hillhouse Ave., New Haven, Conn.

Dr. Braceland Joins Institute of Living.—Dr. Francis James Braceland, consultant in psychiatry at the Mayo Clinic, Rochester, Minn., has been named psychiatrist-in-chief of the Institute of Living. Dr. Braceland, at present secretary and treasurer of the American Board of Psychiatry, has been a fellow and clinical director of the Pennsylvania Hospital, Department for Mental and Nervous Diseases, Philadelphia. He has been successively associate professor of psychiatry, Women's Medical College, Philadelphia, assistant professor of psychiatry, graduate school, University of Pennsylvania, Philadelphia, and dean and professor of psychiatry at Loyola University School of Medicine, Chicago. During World War II he was a special assistant in psychiatry to the Surgeon General of the U. S. Navy and later chief of the division of neuropsychiatry, Bureau of Medicine and Surgery.

DISTRICT OF COLUMBIA

Course in Sight Saving and Braille.—A special summer course will be held at the Catholic University of America, Washington, D. C., July 2 through Aug. 11 to train teachers of sight saving classes and teachers of Braille classes. A clinic and lectures by outstanding ophthalmologists, observation, and Braille teaching classes make up the course. Address inquiries to Roy J. Deferrari, Office of the Secretary-General, Catholic University of America, Washington 17, D. C.

ILLINOIS

Rabies Quarantine.—The state department of agriculture imposed a rabies quarantine in Benton, Franklin County, after three children and four adults were given Pasteur treatments after being bitten or otherwise exposed to two rabid dogs. During April and early May, 53 persons in West Frankfort were compelled to take Pasteur anti-rabic treatments. At least 20 persons reportedly had been exposed to the disease in nearby Williamson County, which is also under quarantine.

Cancer Symposium.—A cancer symposium was held at the Herrin state diagnostic cancer clinic on May 17 for the physicians of the Ninth and Tenth districts of the Illinois State Medical Society. The program was arranged in cooperation with the American Cancer Society, the division of cancer control of the state department of public health, and the American Academy of General Practice. The program, beginning at 1:30 p. m., was as follows:

John B. Frerichs, St. Louis, Cytology of Cancer and the General Practitioner.
Chester C. Guy, Chicago, Tumors of the Biliary Tract.
Helmut P. Seckel, Chicago, Malignant Tumors in Children.
Leo J. Brown and Friedrich P. Bornstein, Herrin, Case Presentations from the Herrin Hospital Cancer Clinic.

Dr. Paul C. Bucy of the University of Illinois College of Medicine, Chicago, spoke at the dinner at the LyMar Hotel at 7:30 p. m. on "Early Diagnosis of Intracranial Lesions."

Chicago

New Head of Tumor Institute.—Dr. James T. Case, radiologist, has been named president of the Chicago Tumor Institute succeeding Dr. Ludvig Hektoen, who has been elected president emeritus.

Multiple Sclerosis Research.—On May 31 the Multiple Sclerosis Foundation presented the first installment of a five-year $125,000 grant for basic research to Northwestern University Medical School. The fund will establish the first research program in the Middle West for multiple sclerosis.

Course in Techniques in Virology.—An eight-week summer course for bacteriologists interested in gaining laboratory experience in basic techniques in virology will be offered by the University of Illinois, Chicago Professional Colleges, June 25-Aug. 18. It will be given under the direction of Dr. John E. Kempf, associate professor of bacteriology. Graduate credit will be awarded for satisfactory completion of the course. Requirements for admission are a bachelor's degree, basic course work in bacteriology, and qualifications for registration in the graduate college of the university. The tuition is $17.50 for residents of Illinois. Requests for information should be addressed to Dr. Milan V. Novak, Associate Dean of the Graduate College, Chicago Professional Colleges, University of Illinois, 808 S. Wood St., Chicago 12.

IOWA

Society News.—The Polk County Medical Society concluded its current program year April 18 with a Cancer Institute at the Hotel Savery in Des Moines. Visiting speakers included: Drs. Charles L. Eckert, Washington, D. C.; Joseph H. Burchenal, New York; Harold L. Stewart, Bethesda, Md., and Walter L. Palmer, Chicago.

Memorial Library for Doctor Wilkins.—Since the death of Dr. Donald Wilkins of Ames in Korea Oct. 5, 1950, a number of his colleagues and friends have planned to create a memorial to him in the form of a library fund to establish and build a collection of books, journals, and reprints on anesthesiology. The fund will be called the Wilkins Memorial Library Fund. Any of Dr. Wilkins' friends who desire further information with reference to this fund or to contribute to it should write Dr. Stuart C. Cullen, Chairman, Division of Anesthesiology, University Hospitals, Iowa City.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

KENTUCKY

Mental Hygiene Committee.—An Advisory Committee on Mental Hygiene to assist in the improvement of the mental hospital treatment program has been appointed by Governor Wetherby. Members of the committee, of which Dr. S. Spaford Ackerly, Louisville, is chairman, are Drs. Bruce Underwood, Louisville; John H. Rompf, Lexington, and Robert Charles Smith, Newport.

Health Official Appointed.—Dr. Charles E. Reddick assumed his duties as deputy state health commissioner and director of local health services for the state department of health April 16. He is a former Paducah-McCracken county health officer and comes to his new position from the Arizona Department of Health, Phoenix, where he has served as director of local health administration for the past three years. Dr. Reddick succeeds Dr. Harold M. Kelso, who resigned January 1 to return to Knoxville, Tenn., as assistant city health officer.

MASSACHUSETTS

Personal.—Dr. Samuel A. Levine, clinical professor of medicine at Harvard Medical School, Boston, and member of the senior staff of the Peter Bent Brigham Hospital, Boston, served as professor of medicine "Pro Tem" at Georgetown University School of Medicine, Washington, D. C., April 1-7. The program was devoted to informal ward rounds and small group teaching for the senior medical students and the house staff.

State Institute of Laboratories.—Dr. Johannes Ipsen of the Harvard School of Public Health has been appointed superintendent of the newly-formed Massachusetts Institute of Laboratories, which will contain four state-operated laboratories under one administration. The state public health department has long provided free diagnostic and other direct services to physicians and local boards of health through its four laboratories. The four laboratories now combined into one institute are: (1) the diagnostic laboratory under Dr. Robert A. MacCready; (2) the biological laboratory, directed by James A. McComb; (3) the Wassermann Laboratory, directed by Dr. William A. Hinton, and (4) the blood laboratory. All four are located on South Street, Jamaica Plain. Dr. Ipsen in 1938 became director of the League of Nations' department of biological standards, where he was responsible for setting and maintaining standards of vaccines and serums all over the world for the League of Nations. He held this post until 1947, when the United Nations' World Health Organization took over this work.

MICHIGAN

Upper Peninsula Medical Society Meeting.—The Marquette-Alger County Medical Society will be host to the Upper Peninsula Medical Society, meeting in Marquette June 22-24. Guest speakers at the session will include:

M. Edward Davis, Chicago, Recent Advances in Diagnosis and Treatment of Carcinoma of the Uterus.
Frederick Schreiber, Detroit, Head Injuries.
George J. Curry, Flint, Recent Advances in Treatment of Ankle Injuries.
Harry R. Foerster, Milwaukee, Dermatology.
Robert L. Parker, Rochester, Minn., Cardiology.
Harry A. Towsley, Ann Arbor, Pediatrics.
Gordon B. Myers, Detroit, Disturbances of Blood Potassium.
Oliver H. Beahrs, Rochester, Minn., Carcinoma of the Thyroid.
Rudolf J. Noer, Detroit, Gastro-Intestinal Hemorrhage.
John M. Sheldon, Ann Arbor, Allergy in General Practice.
Samuel W. Hartwell, Lansing, Office Mental Hygiene.

The Woman's Auxiliary will meet in conjunction with the society. The annual banquet will be held Saturday at 7 p. m. Technical exhibits will be shown.

Annual Conference on Aging.—The University of Michigan announces its fourth annual Conference on Aging will be held in Ann Arbor July 11-13. Rehabilitation of the older handicapped person will be the topic of this year's conference. American and foreign authorities will discuss questions raised at the meetings. Attention will be directed to medical, psychosocial, economic, and vocational aspects of retaining the over-40 workers in the labor force and the role of these workers with reference to mobilization. The conference is under the cosponsorship of the Institute for Human Adjustment, school of medicine, school of public health and extension service of the University of Michigan, the Office of Vocational Rehabilitation of the Federal Security Agency, and the Michigan Department of Vocational Rehabilitation. Room reservations should be made by writing to the Michigan Union, Ann Arbor. For further information write to Dr. Wilma Donahue, Institute for Human Adjustment, Room 1510, Rackham Building, Ann Arbor.

MISSOURI

Friends Honor 50-Year Practitioner.—More than 1,000 persons attended a reception in Kansas City in honor of Dr. Max Goldman, who has practiced medicine for 50 years. Earlier the staff of St. Mary's Hospital presented him a gold medal that bore an engraving of the hospital and an inscription of appreciation.

State Medical Election.—The Missouri State Medical Association at its meeting in Kansas City April 22-25 installed Dr. C. Edgar Virden, Kansas City, as president. Other officers for the coming year include: J. William Thompson, St. Louis, president-elect; H. E. Petersen, St. Joseph, secretary, and Charles E. Hyndman, St. Louis, treasurer. Delegates to the American Medical Association are Drs. Robert E. Schlueter, St. Louis, and James R. McVay, Kansas City. Their respective alternates are Drs. Flavius G. Pernoud, St. Louis, and Rolla B. Wray, Nevada.

NEW YORK

Cerebral Palsy Center.—The Nassau County Cerebral Association broke ground May 6 for its $225,000 cerebral palsy diagnostic and treatment center at Roosevelt, L. I. The association now operates a temporary palsy center in the Hempstead American Legion building.

Anesthetists Placement Committee.—The Placement Committee of the New York State Society of Anesthesiologists, under the chairmanship of Dr. Philip H. Sechzer, Laurelton, will function as a central clearing house and counseling service for physicians, groups and institutions. The society office is at 137 W. 11th St., New York 11, N. Y. The committee will determine vacancies in the state open to anesthesiologists. The state will be surveyed to discover localities where no professional service in anesthesia is available. The committee will be available for consultation with any physician who intends to practice anesthesiology within New York State.

Medical Jurisprudence Society.—The Society of Medical Jurisprudence held a meeting at 8:30 p. m. May 14 in room 440 of the New York Academy of Medicine building. Col. Howard J. Hutter, instructor in radiology, New York University-Bellevue Medical Center, New York, presented a paper on "How to 'Read' an X-Ray Film." This was followed by a discussion from the medical expert's standpoint by Dr. Solomon Fineman, assistant clinical professor of radiology at Columbia University, New York, who also spoke on pitfalls in x-ray diagnosis. Dr. Frank R. Ferlaino, assistant clinical professor of industrial medicine at New York Post-Graduate Hospital and Dispensary, discussed the paper from the industrial and liability examiner's standpoint. The meeting was open for members and their guests.

New York City

Research on Bacteriophage.—A grant of $50,000 has been received by the Roosevelt Hospital to support a five year research program in the field of bacteriophage. The money will be disbursed at the rate of $10,000 a year. The donor requested that the gift be anonymous. Dr. Simon A. Beisler, president of the hospital's medical board and head of the division of urology, will guide the project to develop a phage.

Infirmary Postgraduate Courses.—The complete reorganization of postgraduate courses at the New York Eye and Ear Infirmary has been accomplished, under the direction of Dr. Raymond E. Meek, chairman, and Dr. J. Gordon Cole, secretary-treasurer. Postgraduate courses for both eye and ear specialists are given throughout the year and are available for a limited number of students applying to the registrar at the infirmary.

Dr. Schaefer to Receive Remington Medal.—Hugo H. Schaefer, Ph.D., treasurer of the American Pharmaceutical Association and dean of the Brooklyn College of Pharmacy, will receive pharmacy's highest honor, the Remington Medal, at a dinner in New York in the fall. The past presidents of the American Pharmaceutical Association served as the jury of award. Dr. Schaefer was commended for his unselfish service to the profession over the past 30 years. He was cited for his leadership in the development of sound educational procedures in American pharmacy, his contributions to the work of the U. S. Pharmacopoeia and National Formulary revision, his contributions to the solution of problems involving food and drug legislation, and his public service as chemist to the New York Board of Pharmacy and adviser to the War Production Board in World War II.

Grant for City Day Camps.—The New York Fund for Children, Inc., has made a grant of $30,000 to the New York City Department of Health to finance department activities in relation to improving conditions for children in day camps. There were about 280 camps operating in and around the city last summer, and from 75,000 to 100,000 children attended. In city day camps children live at home and attend the camp, usually six or eight hours a day. The grant will be used toward: (1) Inspection of camps to eliminate unsanitary and other undesirable practices; (2) educational efforts with camp operators, directors, and other personnel aimed at developing and gaining acceptance of higher standards for camps; (3) educational efforts with parents (through publicity in newspapers, by radio, with pamphlets and so on) to help them select day camps for their children, and (4) stimulating an interest in local universities and colleges in health problems involving the operation of day camps.

NORTH CAROLINA

Postgraduate Course.—The Duke University School of Medicine's spring medical postgraduate course will be held in Durham June 18-21. Papers will be given during the morning sessions, ward rounds or visits to clinics will be held in the afternoons. Round table discussions on Monday and Tuesday evenings will be devoted to the use of drugs in cardiovascular diseases and pain.

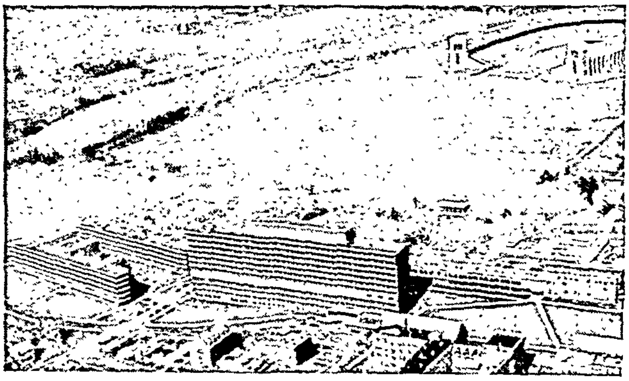
OHIO

Society News.—The recently-organized Cleveland Society of Physical Medicine and Rehabilitation has elected the following officers: Dr. Shelby G. Gamble, Cleveland, president; Dr. Harry T. Zankel, Cleveland, vice president, and Dr. Bert A. Treister, University Heights, secretary-treasurer.

State Medical Election.—At the April meeting of the Ohio State Medical Association in Cincinnati Dr. Fred W. Dixon, Cleveland Heights, was installed as president, and Dr. Harve M. Clodfelter, Columbus, was chosen president-elect. Dr. Henry P. Worstell, Columbus, was elected treasurer in 1949 for a three-year term. The 1952 meeting will be held in Cleveland May 20-22.

Dr. Lotspeich to Head Department of Physiology.—A 1944 honor graduate of the University of Cincinnati College of Medicine, Dr. William D. Lotspeich, physiologist, finishing a fellowship at Oxford University, England, will return to his alma mater next September as head of the department of physiology. He will succeed Dr. Martin H. Fischer, now professor emeritus of physiology. Dr. Gustav Eckstein, associate professor of physiology, has been acting department head. Dr. Lotspeich was appointed instructor in physiology at Cornell University Medical School, New York, in 1945, then went to the University of Syracuse Medical School as an assistant professor of physiology. Since 1948 he has held a scholarship in medical sciences from the John and Mary R. Markle Foundation.

Dedicate Health Center at Columbus.—The new health center at the Ohio State University was dedicated at outdoor ceremonies May 15. Top officials of the university and state welfare and health departments participated in the ceremonies. Dr. Raymond B. Allen, president of the University of Washington at Seattle, delivered the dedication address. The four buildings in the 15½ million dollar center are the Dentistry Building, the Ohio Tuberculosis Hospital, under the state health department, the 600-bed University Hospital, and the Columbus Receiving Hospital, under the state welfare department. Outstanding alumni of the colleges of medicine and dentistry were presented with awards in recognition of contributions to their respective fields, the first such awards given by the two colleges. Those receiving medical alumni awards were: Drs. Jonathan Forman and Herbert M. Platter, both of Columbus; Dr. Joseph H. McNinch, Washington, D. C.; Dr. James C. Sargent, Milwaukee, and Dr. Alfred H. Whittaker, Detroit. Scientific sessions of physicians and dentists and conferences of nurses were scheduled for the week. The new University Hospital is a single-line building, 400 feet long and 50 feet wide consisting of 12 floors. Its length was determined by typical nursing floors consisting of three nursing units of approximately 30 beds each. The majority of the wards run continuously along the south side of the corridor. Beds are proportioned on the basis of approximately 11 per cent in single rooms, 50 per cent in double rooms, and 39 per cent in four-bed rooms. Floors six through eleven contain the patient rooms. The operating rooms and adjunct services and laboratories are located on the fourth floor. One operating room is equipped with louvers in the ceiling through which color movies may be taken. The room is also equipped with conduits for televising the operations. On the operating floor is a clinical observation and lecture room with a "one-way" observation panel into one of the 12 operating rooms. The third floor is devoted to diagnostic laboratories serving the needs of the entire center. The second floor contains the departments of radiology and physical therapy, which will give complete service to the general hospital patients. These lower floors are accessible to students and to patients from adjacent hospitals without passing through the hospital wards. Administrative offices are located on the first floor, while the emergency rooms, receiving, supplies, storage, and kitchen are on the ground floor. The administration of the various buildings in the program is under separate college or state departments, but all are a coordinated part of the health center. Space vacated in Hamilton Hall by the college of dentistry, which has moved to its new building in the health center, is being utilized and enlarged for the increased enrollment in the college of medicine.



The four new buildings of the 15½ million dollar health center at Ohio State University: (1) Ohio Tuberculosis Hospital; (2) Columbus Receiving Hospital; (3) University Hospital, and (4) Dentistry Building.

PENNSYLVANIA

Society News.—The George F. Geisinger Memorial Hospital and the Foss Clinic at Danville conducted a postgraduate seminar April 20. Among the speakers was Dr. Russell E. Teague, Philadelphia, secretary of health of Pennsylvania, who spoke on state public health problems.

Clean Streams Program.—Nine additional municipalities have received a total of over $96,770 from state funds as part payment of the cost of preparing plans for sewage treatment works under the state's clean streams program. The latest municipalities to receive checks are Scranton, North York, Christiana, Millerstown, Galeton, Clearfield, Nanticoke, Honesdale and

Coudersport. These payments bring the total paid to 189 municipalities to $1,035,148.87. Under the clean streams program payments of up to 50 per cent of the cost of plans for sewage treatment works are paid municipalities from state funds. Payments are figured on costs that prevailed in 1942, in accordance with the clean streams law.

Philadelphia

Chapin Medal Award.—Dr. Hobart A. Reimann, head, department of experimental medicine of Jefferson Medical College of Philadelphia, delivered the 10th Charles V. Chapin oration May 9 and received the Chapin Medal awarded by the City of Providence and the Rhode Island Medical Society in Providence. The medal is awarded annually to a physician who has made important contributions to medical knowledge. The present recipient was recognized for his pioneer work on the viral pneumonias, viral dysentery, and other diseases.

Pittsburgh

New Department of Biochemistry and Nutrition.—A department of biological chemistry and nutrition has been organized at the University of Pittsburgh Graduate School of Public Health, with Robert E. Olson, Ph.D., as professor and head and as lecturer in the department of medicine in the school of medicine. The department, in addition to its teaching responsibility, will have a program of basic research that will center initially around the study of cellular physiology, with particular attention to the study of tissue enzymes and of the vitamin-enzyme-hormone interrelationships in cellular metabolism. For two years Dr. Olson has been a research fellow and then an established investigator of the American Heart Association and director of the heart metabolism section, department of nutrition, at the Harvard School of Public Health, Boston. He is to receive his medical degree from Harvard in June of this year. Dr. Olson will not assume his duties on a full time basis at the University of Pittsburgh until July 1, 1952, but during the coming year he will supervise the installation of laboratory facilities and recruit key members of his staff.

TENNESSEE

Dr. Pride Made Professor Emeritus.—The University of Tennessee College of Medicine, Memphis, recently awarded Dr. William T. Pride the title of professor emeritus. Dr. Pride joined the faculty of the old College of Physicians and Surgeons in 1908 and had been professor of obstetrics and gynecology since 1933.

New Section on Clinical Chemistry.—Dempsie B. Morrison, Ph.D., associate professor of chemistry at the University of Tennessee Medical Units, Memphis, will be the director of the section of clinical chemistry to be established by the college of medicine this summer. The section is being established to enlarge both the teaching program of the college and the chemical diagnostic services to patients at John Gaston Hospital, the teaching hospital of the college. The section will be located on the second floor of the old pathology building in the rear of the hospital. The building will be remodeled as soon as the division of pathology and bacteriology moves into the new Institute of Pathology, about July 1.

WASHINGTON

Institute for Study of Acohol.—The first Northwest Institute for the Scientific Study of Alcohol will be held June 11-15 in Guggenheim Hall at the University of Washington School of Medicine, Seattle. A special medical seminar on problems of alcohol will be held June 13 for practicing physicians. Dr. Andrew C. Ivy, vice president of the University of Illinois in charge of Chicago Professional Colleges, and Elvin M. Jellinek, Sc.D., dean of the Yale Institute of Alcohol Studies in the Southwest, Texas Christian University, Dallas, will speak. Physicians may register either for the entire institute or for the seminar. Other visiting lecturers will be: Dr. Haven Emerson, New York; Leon A. Greenberg, Ph.D., New Haven, Conn.; William R. McKay, Los Angeles, and Capt. James D. Whitall, Philadelphia. The fee for the entire institute is $15 and for the medical seminar only $5.

GENERAL

Today's Health Wins Award.—*Today's Health*, published by the American Medical Association, was one of six general magazines to be voted the National Safety Council's Public Interest Award for 1950 in recognition of exceptional service to safety. During the year the magazine carried 17 major articles on safety, eight separate items, and in March inaugurated a regular monthly feature, "First Aid." The publication received the same award in 1949.

Rocky Mountain Spotted Fever.—Rocky Mountain spotted fever in the mountain and Pacific states in the past has appeared in March and has reached a peak in May or June. In the five-year period 1933-37 the average number of cases reported in March was 11 and in April 45. In the five-year period 1940-44 the average number of cases in March and April was six and 29, respectively. In March of the present year only one case was reported, and in April none was reported in these groups of states. The disease appears and reaches a peak one to two months later in the eastern part of the country.

Society of Biological Psychiatry.—This society will hold its annual meeting at the Trimble Hall in the Hotel Claridge in Atlantic City, N. J., June 17. Papers to be delivered by invitation include:

Clarence W. Olsen, Beverly Hills, Calif., Relationship Between Psychoses and Visceral Crises.
William J. Grace and David T. Graham, New York, Specificity of the Relation Between Attitudes and Diseases.
N. Dorin Ischlondsky, New York, Brain Dynamics and Psychic Activity.
Charles M. Pomerat, Chicago, Tissue Culture of the Human Brain.

The president's reception and dinner will be held at 6 p. m. for physicians and invited guests. The evening's session will be a symposium on the anatomy and physiology of thought processes.

International Congress of Allergy.—The first International Congress of the International Association of Allergists will meet in Zurich, Switzerland, Sept. 23-29. Topics under discussion include: nature and social importance of the allergic diseases, histology of the allergic lesion, chemical and serological aspects of allergy, influence of constitution and heredity on the manifestation of allergic diseases, pharmacology of allergic reactions, and diagnosis of allergic diseases. The congress will be followed on Oct. 1 and 2 by a symposium, "The Influence of the Pituitary Gland and Adrenal Cortex on Biological Reactions," which has been arranged by the Swiss Academy of Medical Sciences. The general secretary of the congress is Dr. A. S. Grumbach, Institute of Hygiene, Zurich.

International Congress of Anesthesiology.—An International Congress of Anesthesiology, organized by the French Association of Studies on Anesthesia and Anesthesiology under the patronage of the Council on Coordination of International Congresses of Medical Sciences, will be held in Paris Sept. 20-22 at the Nursing School of the Salpetriere, 47 Boul. de l'Hospital. The congress will be open to all persons interested in anesthesia. The scientific program includes:

M. Cara, Paris, Graphic Recording of Physiological Functions in the Course of Anesthesia.
M. Van de Walle, Louvain, Natural Curare Derivatives.
M. Bovet, Rome, and M. Huguenaud, Paris, Synthetic Curare Compounds; Theoretical Report; Clinical Application.
M. Thalheimer, Paris, Establishment of an International Movement of Study on Anesthesiology.

Information as to registration may be obtained from the office of the secretary of the congress, 12 Rue de Seine, Paris 6e, France.

Society Elections.—The American Society for Clinical Investigation at its meeting April 30 elected Dr. W. Barry Wood Jr., St. Louis, president; Dr. Charles A. Janeway, Boston, vice president, and Dr. William M. M. Kirby, San Francisco, secretary-treasurer.——The Council of New England State Medical Societies at their April meeting elected Dr. Joseph H. Howard, Connecticut, president; Dr. Deering G. Smith, New Hampshire, vice president, and Dr. Creighton Barker, Connecticut, executive secretary-tresaurer.——At the meeting of the American Academy of Neurology at Virginia Beach on

April 11 and 12 Dr. Pearce Bailey of Washington, D. C., became president. Newly elected officers include: Dr. Howard D. Fabing of Cincinnati, president-elect; Dr. Walter O. Klingman, Charlottesville, Va., vice president; Dr. Joe R. Brown, Minneapolis, treasurer, and Dr. Francis M. Forster, Washington, D. C., secretary. The 1952 meeting will be held in the Brown Hotel, Louisville, April 24 and 25. Next year the two-day course in neuropathology instituted this year will be given again and also a course in neuroroentgenography and electroencephalography. Requests for papers on the program are to be sent to Dr. Alexander T. Ross at the University of Indiana School of Medicine, Indianapolis. Requests must be accompanied by a title and an abstract. The deadline for this is November 1.

Rehabilitation Meeting.—The Association for Physical and Mental Rehabilitation will hold its fifth annual national convention July 3-6 in Los Angeles. The scientific and clinical sessions, to be held at the Hollywood Roosevelt Hotel in Hollywood, tentatively include Dr. Edward D. Greenwood, Menninger Foundation, Topeka, Kan.; Dr. Alvin B. C. Knudson and Dr. John E. Davis, Veterans Administration central office, Washington, D. C.; Dr. Tracy J. Putnam, Beverly Hills, Calif.; representatives from the surgeon general's office of the armed forces, and rehabilitation specialists from the University of California School of Medicine at Los Angeles, the Kabat-Kaiser Institute, Santa Monica, Calif., and a number of hospitals throughout the country. These meetings will provide an opportunity for hospital therapists and rehabilitation workers to discuss trends and research findings in medical rehabilitation. Information may be obtained from the convention chairman, Mr. Burr S. Zachary, Neuropsychiatric Hospital, Los Angeles 25, or the national president, Mr. George Devins, Veterans Administration Hospital, Long Beach, Calif.

Poliomyelitis Training Courses.—The National Foundation for Infantile Paralysis has listed the following training centers that have scheduled short courses for physicians in the treatment of poliomyelitis patients.

Children's Medical Center, Boston, Dr. William T. Green, director, June 4-8, Aug. 6-10.

D. T. Watson School of Physiatrics, Leetsdale, Pa., Dr. Jessie Wright, director, six-day courses, dates to be arranged according to number and time of applications.

Georgia Warm Springs Foundation, Warm Springs, Ga., Dr. Robert L. Bennett, director, one-week course starting the first week in July and October.

Orthopaedic Hospital, Los Angeles, Dr. Charles L. Lowman, director, May 21-24, Oct. 22-25.

Stanford University School of Medicine, San Francisco, Dr. William H. Northway, director, one course scheduled in the summer, probably in June.

University of Colorado Medical Center, Denver, Dr. Winona G. Campbell, director, May 7-9, poliomyelitis; Dec. 13-15, postgraduate course in poliomyelitis in conjunction with other pediatric problems.

Enrollment must be arranged directly with the training center. Physicians who need financial assistance to attend these polio courses should contact their local chapters of the national foundation.

CANADA

Annual Canadian Medical Meeting.—The Canadian Medical Association will hold its annual meeting in Montreal June 18-22 under the presidency of Dr. Norman H. Gosse of Halifax. A series of roundtable conferences have been arranged for Wednesday, Thursday and Friday mornings, to be followed by general sessions. Visiting speakers include, Drs. Donald C. Balfour, Rochester, Minn.; Chester S. Keefer, Boston and Charles P. Bailey, Philadelphia. Sectional meetings will be held during the afternoons. A color television program will be shown Wednesday, Thursday and Friday afternoons. A program of entertainment has been planned for the doctors' wives.

Graduate Course in Allergy.—This course will be offered by the American Academy of Allergy June 14-16 in Montreal, under the sponsorship of the Faculty of Medicine, McGill University, and will be given in the Royal Victoria Hospital. Any interested physician in the United States or Canada may attend. The fee is $40. Applications may be sent to Dr. Bram Rose at the hospital, Montreal 2, Canada. Sixteen speakers will present the course. Nine are on the university faculty: Drs. Bram Rose, John S. L. Browne, William J. McNally, Joseph A. P. Pare, G. Lyman Duff, Harry L. Bacal, H. S. Mitchell, Dr. Karl K. Pump, and Eric Wittkower; from Columbia University College of Physicians and Surgeons, New York, Elvin A. Kabat, Ph.D., and Dr. William B. Sherman. Other speakers are Dr. Hans Selye, University of Montreal; Dr. John D. L. Fitzgerald, University of Toronto; Charles H. Walton, University of Manitoba, and Rubin Gdoli, Brooklyn. In addition to general allergy subjects there will be lectures on Oto-Rhinology in Relation to Allergy, Allergic Dermatoses, Allergy in Children, and Psychiatric Aspects in Allergy.

CORRECTION

Faculty Promotions at Temple University.—Dr. John Lansbury was promoted from associate professor to clinical professor of medicine at Temple University School of Medicine, Philadelphia, not from clinical professor to professor of medicine as was stated in The Journal Feb. 3, page 333.

MEETINGS

American Medical Association, Atlantic City, June 11 to 15. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Association for the Study of Neoplastic Diseases, St. Agnes Hospital, Baltimore, June 7-9. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N. W., Washington 8, D. C., Secretary.

American College of Chest Physicians, Atlantic City, June 7-10. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, June 10. Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Diabetes Association, Chalfonte-Haddon Hall, Atlantic City, June 9-10. Dr. John A. Reed, 11 W. 42d St., New York 18, Secretary.

American Electroencephalographic Society, Hotel Claridge, Atlantic City, June 16-17. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Gastro-Enterological Association, Atlantic City, June 8-9. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco 2, Secretary.

American Geriatrics Society, Hotel Brighton, Atlantic City, June 7-9. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

American Hearing Society, Palmer House, Chicago, June 29. Mrs. Frances E. Lee, 817 Fourteenth St. N.W., Washington 5, D. C., Secretary.

American Medical Women's Association, Hotel Dennis, Atlantic City, June 9-10. Dr. Mildred C. J. Pfeiffer, Woman's Medical College of Pennsylvania, Philadelphia 29, Secretary.

American Neurological Association, Atlantic City, June 18-20. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Ophthalmological Society, The Greenbrier, White Sulphur Springs, W. Va., June 7-9. Dr. Maynard C. Wheeler, 30 W. 59th St., New York 19, Secretary.

American Orthopedic Association, The Greenbrier, White Sulphur Springs, W. Va., June 20-23. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Proctologic Society, Atlantic City, June 7-10. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Radium Society, Atlantic City, June 6-9. Dr. John Wirth, U. S. Marine Hospital, Baltimore, Secretary.

American Rheumatism Association, Hotel Dennis, Atlantic City, June 8-9. Dr. Charles Ragan, 620 W. 168th St., New York 32, Secretary.

American Society for the Study of Sterility, Ritz-Carlton Hotel, Atlantic City, June 9-10. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Therapeutic Society, Atlantic City, June 8-10. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

Association for the Study of Internal Secretions, Chalfonte-Haddon Hall, Atlantic City, June 7-9. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

Catholic Hospital Association of the United States and Canada, Convention Hall, Philadelphia, June 2-5. Mr. M. R. Kneifl, 1402 S. Grand Blvd., St. Louis 4, Executive Secretary.

Conference of Presidents and Other Officers of State Medical Associations, Hotel Traymore, Atlantic City, June 10. Mr. John E. Farrel, 106 Francis St., Providence 3, R. I., Secretary.

Great Falls Medical-Surgical Conference, Great Falls, Montana, June 25-26. Dr. William E. Sullens, Box 1066, Great Falls, Chairman.

Idaho State Medical Association, Sun Valley, June 17-20. Dr. Robert S. McKean, 305 Sun Building, Boise, Secretary.

Maine Medical Association, Poland Spring House, Poland Spring, June 17-19. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Medical Library Association, Denver, June 28-30. Miss Caroline Riechers, Rush Medical College Library, 1758 W. Harrison St., Chicago 12, Secretary.

National Proctologic Association, Madison Hotel, Atlantic City, June 9. Dr. George E. Mueller, 1214 W. Beach Blvd., Biloxi, Miss., Executive Secretary.

Post Graduate Medical Assembly of South Texas, Shamrock Hotel, Houston, Texas, July 23-25. Mrs. W. H. Dahme, 229 Medical Arts Bldg., Houston, Executive Secretary.

Society for Investigative Dermatology, Ritz-Carlton Hotel, Atlantic City, June 7-8. Dr. Herman Beerman, 255 S. 17th St., Philadelphia, Secretary

Society for Vascular Surgery, Chalfonte-Haddon Hall, Atlantic City, June 10. Dr. George D. Lilly, 333 Ingraham Bldg., Miami 32, Fla., Secretary.

Society of Biological Psychiatry, Claridge Hotel, Atlantic City, June 17. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles 17, Secretary.

South Dakota State Medical Association, Aberdeen, June 2-6. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

West Virginia State Medical Association, The Greenbrier, White Sulphur Springs, July 19-21. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Executive Secretary.

INTERNATIONAL

European Congress on Rheumatism, Barcelona, Spain, Sept. 24-27. Dr. Gunnar Edströn, Lund, Sweden, Secretary.

General Practitioners Study Club International, Rome, Italy, Sept. 12-15. Dr. John O'Connell, 10300 Lackland Road, St. Louis 14, Mo., U. S. A., President.

International Academy of Proctology, Atlantic City, N. J., U. S. A., June 7-8. Dr. Alfred J. Cantor, 43-45 Kissena Blvd., Flushing, New York, Secretary.

International Anesthesia Research Society, London, England, Sept. 3-7. Mr. R. W. Cope, University College Hospital, London W.C.1, England.

International Association of Allergists, Zurich, Switzerland, Sept. 23-29. Prof. A. S. Grumbach, Hygiene Institut der Universitaet Zurich, Gloriastr. 32, Zurich, Switzerland.

International Congress of Anesthesiology, Nursing School of the Salpiettre, 47 Boul de l'Hospital, Paris, France, Sept 20-22. 12 rue de Seine, Paris 6^{e}, France, Secretariat.

International Congress of Clinical Pathology, London, England, July 16-20. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W.9, England, Secretary.

International Congress of Gynecology, Maison de la Chimie, Centre Marcellin, Paris, France, June 23-29. Dr. Maurice Fabre, 1, rue Jules-Lefebvre, Paris IX, General Secretary.

International Congress on Industrial Medicine, Instituto Superior Técnico, Lisbon, Portugal, Sept. 9-15. Dr. Luis Guerreiro, Instituto Nacional do Trabalho e Previdência, Praça do Comercio, Lisbon, Secretary General.

International Congress on Mental Health, Mexico City, Mexico, Dec. 11-19.

International Congress of Military Medicine and Pharmacy, Paris, France, June 17-23. Physician General Dutrey, 8, bis, rue de Recollets, Paris X, Secretary General.

International Exhibition of Medical Arts, Turin, Italy, May 30 June 12. Prof. S. Teneff, Palazzo della Exposizioni al Valentino, Turino, Italy.

International Gerontological Congress, Hotel Jefferson, St. Louis, Mo., U. S. A., Sept. 9-14. Dr. John E. Kirk, 5600 Arsenal Street, St. Louis 9, Mo., Chairman, Program Committee.

International Hospital Congress, Brussels, Belgium, July 15-21. Capt. J. E. Stone, 10 Old Jewry, London E.C., England, Secretary.

International Poliomyelitis Congress, Copenhagen, Denmark, Sept. 3-7. Prof. Dr. Niels Bohr, Statens Seruminstitut, 80 Amager Blvd., Copenhagen S., Denmark, President.

International Society of Angiology, Claridge Hotel, Atlantic City, N. J., U. S. A., June 9. Dr. Henry Haimovici, 105 E. 90th St., New York 28, Secretary.

International Society of Surgery, Paris, France, Sept. 24-29. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, Secretary General.

International Society for the Welfare of Cripples, Fifth World Congress, Stockholm, Sweden, Sept. 9-14. Mr. Donald V. Wilson, 54 E. 64th St., New York 21, N. Y., U. S. A., Executive Director.

Pan Pacific Surgical Association Congress, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

Students' International Clinical Congress, Leyden, Utrecht, Groningen and Amsterdam, Holland, July 10-28. N. A. M. Bergstein, Oude Gracht 143 bis, Utrecht, Holland, Secretary General.

World Confederation for Physical Therapy, Copenhagen, Denmark, Sept. 7-8.

World Medical Association, Stockholm, Sweden, Sept. 15-21. Dr. Louis H. Bauer, 2 E. 103d St., New York 29, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers, June 18-20, Sept. 5-7 (Part I only). Applications must be filed at least thirty days prior to an examination. Ex. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

INTERNATIONAL COLLEGE OF SURGEONS

Examinations for Certified Fellowship in the United States Chapter in Urologic Surgery, Obstetrics and Gynecology and Proctologic Surgery, Chicago, June 1-2. Examinations will be given in General and Orthopedic Surgery, Chicago, Aug. 3-4. Sec., Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago 10.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application was Jan. 20. *Oral.* Memphis, Oct. 14-17. *Written.* July 18, 1952, Various locations. Final date for filing applications is Jan. 18, 1952. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Dermatology and Syphilology: *Oral.* New York, June 8-10. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21, N. Y.

American Board of Internal Medicine: *Written.* Various centers, Oct. 15. *Final date for filing* applications was May 1. *Oral.* The schedule of oral examinations for 1951 has been arranged on a regional basis as follows: June, includes candidates from Beirut, Canada, Canal Zone, Connecticut, Delaware, District of Columbia, Maryland, New Jersey, Ohio, Pennsylvania, Puerto Rico, Rhode Island, Virginia and West Virginia. New York, date to be announced, covering Maine, Massachusetts, New Hampshire, New York and Vermont. San Francisco, date to be announced, covering Arizona, California, Colorado, Idaho, Montana, New Mexico, Oregon, Utah and Washington.

Only candidates who have not taken an oral examination can be admitted under the schedule arranged thus far.

Dates of closing dates for the filing of applications for examinations in New York and San Francisco to be announced.

Oral examinations in the subspecialties will be held at the same time and place and on the same distribution.

Exec. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3.

American Board of Neurological Surgery: *Oral.* Chicago, Oct. 25-26. *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 examination is Jan. 1, 1952. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and Gynecology: *Written.* Feb. 1, 1952. Final date for filing applications is Nov 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

American Board of Ophthalmology: *Written.* Twenty-five centers, Feb. 4-5, 1952. *Oral.* New York, May 31-June 5; Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Final date for filing applications for the 1952 Part II examinations is Aug. 15, 1951. Sec., Dr. Harry A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 9-12. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pediatrics: *Oral.* Detroit, June 8-10. Buffalo, Oct. 26-28. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation: *Parts I and II.* Philadelphia, June 16-17. Final date for filing application was April 1. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago.

American Board of Plastic Surgery: *Oral and Written.* Chicago, June 4-6. Final date for filing application was March 15. Sec., Dr. Bradford Cannon, 330 Dartmouth St., Boston.

American Board of Preventive Medicine: *Written.* San Francisco, October 28. *Oral.* San Francisco, October 29. Sec., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore 5.

American Board of Psychiatry and Neurology: Philadelphia, June 11-12. Final date for filing application was March 1. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology: *Oral.* Atlantic City, June 5-9. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

Board of Throacic Surgery: *Written.* Various parts of the country. Sept. 14, 1951. Final date for filing applications is July 15. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

American Board of Urology: Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

DEATHS

Russell, William Logie ⊕ New York; born in New Brunswick, Canada, July 24, 1863; University of the City of New York Medical Department, 1885; after several years of private practice in New York was appointed assistant physician at the Willard State Hospital, serving from 1897 to 1903, when he became medical inspector for the New York State Hospital Commission; in 1910 was appointed medical superintendent of the Long Island State Hospital; in 1911 went to White Plains, N. Y., as medical director of the New York Hospital-Westchester Division (then known as Bloomingdale Hospital); in 1926 was appointed general psychiatric director for the Society of the New York Hospital; participated in the planning for the New York Hospital-Cornell University Medical Center, devoting most of his time to the planning and organization of the Payne Whitney Psychiatric Clinic; retired in 1936; consultant in psychiatry at the Grasslands Hospital in Valhalla, New York Hospital, and to the Burke Foundation; emeritus professor of psychiatry at Cornell University Medical College; president of the American Psychiatric Association in 1931, New York Psychiatric Society in 1914 and 1915, and in 1919 president of the Medical Society of the County of Westchester; member of the National Committee for Mental Hygiene, of which he had been vice president, New York Society for Clinical Psychiatry, and the Association for Research in Nervous and Mental Diseases; fellow of the New York Academy of Medicine; member of the advisory committee to the National Institute of Mental Health of the U. S. Public Health Service; specialist certified by the American Board of Psychiatry and Neurology; in 1932 selected to give the Thomas W. Salmon Memorial Lectures for 1933; author of "A History of the Psychiatric Service of the New York Hospital," published in 1945; died in Santa Barbara, Calif., March 31, aged 87, of heart disease.

Smith, George Milton ⊕ New Haven, Conn.; born in Hong Kong, China, July 5, 1879; Columbia University College of Physicians and Surgeons, New York, 1905; instructor in surgery at his alma mater, 1909-1910; research associate emeritus in anatomy at Yale University School of Medicine; formerly associate in pathology at Washington University Medical School in St. Louis, where he was associate pathologist to Washington University Hospital; for many years a member of the Connecticut Medical Examining Board and in 1943 president of the Connecticut State Medical Society; member of the New England Surgical Society, American Association of Anatomists, and the American Association of Pathologists and Bacteriologists; fellow of the American College of Surgeons; since 1947 special consultant to the National Advisory Cancer Council, of which he had been a member and executive director; at one time vice president of the American Society for the Control of Cancer; member of the Pathological Society of Great Britain and Ireland; corresponding member of the French Association for the Study of Cancer; member of the board of scientific advisors of the Jane Coffin Childs Memorial Fund for Medical Research; since 1933 director of the Anna Fuller Fund; trustee of the Bermuda Marine Biological Station; served overseas with the American Expeditionary Forces during World War I as a captain with a mobile unit; during World War II medical director of the Connecticut State Defense and Connecticut War Council; chairman of the subcommittee on armored vehicles of the National Research Council from 1942 to 1946; consultant to the Surgeon General of the U. S. Army from 1944 to 1946; medical director of the Scovill Manufacturing Company in Waterbury from 1920 to 1946; died in Pine Orchard February 26, aged 71, of arteriosclerotic hypertensive cardiac disease.

Lee, Walter Estell ⊕ Philadelphia; born July 22, 1879; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the founders group of the American Board of Surgery; emeritus professor of surgery at the Medico-Chirurgical College Graduate School of Medicine, University of Pennsylvania, where he was named associate professor of surgery in 1920, professor in 1925, and vice dean for surgery in 1935, holding both posts until he retired in 1946; for six years member of the Pennsylvania State Board of Medical Education and Licensure; served in France during World War I, where he went in 1915 with the Pennsylvania Hospital overseas unit; later served in the medical reserve corps of the U. S. Army and became a lieutenant colonel; member of the American Surgical Association, of which he was recorder from 1930 to 1946, Philadelphia Academy of Surgery, Philadelphia Pediatric Society, Philadelphia Pathological Society, Society of Clinical Surgery, American Association of Thoracic Surgery, Kappa Sigma, and Alpha Mu Pi Omega; fellow of the American College of Surgeons; consulting surgeon, Graduate Hospital of the University of Pennsylvania, Germantown Dispensary and Hospital, Pennsylvania and Children's hospitals in Philadelphia, Bryn Mawr (Pa.) Hospital and Burlington County Hospital in Mount Holly, N. J.; wrote many papers on medical and surgical subjects and, with Dr. F. T. Stewart, wrote a manual of surgery; co-editor of *Progressive Medicine* from 1919 to 1933 and chairman of the editorial board of the *Annals of Surgery* from 1935 to 1947; died April 5, aged 71.

Wood, Thomas Denison, Taunton, Mass.; born in Sycamore, Ill., Aug. 2, 1865; College of Physicians and Surgeons, medical department of Columbia College, New York, 1891; member of the American Medical Association and the Medical Society of the State of New York; fellow of the American Association for the Advancement of Science; professor of physical education at Columbia University from 1901 to 1927 and professor of health education from 1927 to 1932, when he became professor emeritus; chairman of the commission on the welfare of teachers, New York State Teachers' Association, from 1913 to 1916; proposed and was chairman for 27 years of the joint committee of the American Medical Association and the National Educational Association, which devoted itself to consideration of health problems in education and had been chairman emeritus since 1938; chairman of the health section of the International Federation of the Home and School from 1928 to 1936; chairman of the committee on the school child, White House Conference on Child Health and Protection from 1929 to 1932; died in Morton Hospital March 19, aged 85, of pneumonia.

Timberlake, Gideon ⊕ St. Petersburg, Fla.; born in Charlottesville, Va., March 6, 1876; University of Virginia Department of Medicine, Charlottesville, 1902; a specialist certified by the American Board of Urology, of which he had been a founder; member of the American Urological Association; fellow of the American College of Surgeons; formerly practiced in Baltimore, where he was professor of urology at the University of Maryland School of Medicine and urologist to the University, St. Agnes, and Franklin Square hospitals, and surgeon to the Church Home and Infirmary and West Baltimore General hospitals; during World War I served as a major in the medical corps of the U. S. Army; organizer and director of the Army School of Urology at Fort Oglethorpe, Ga., in 1918, and later became chief of the department of urology at Walter Reed General Hospital in Washington, D. C.; consultant in urology to Veterans Administration Hospital in Bay Pines; member of the staff of Mound Park and St. Anthony's hospitals; consultant to the American Legion Hospital for Crippled Children; inventor of several urologic instruments; died March 1, aged 74, of pneumonia.

Silkworth, William Duncan, New York; born in Brooklyn July 22, 1877; University and Bellevue Hospital Medical College, New York, 1899; member of the American Medical Association; for many years medical superintendent of the Charles B. Towns Hospital; served at the Knickerbocker Hospital; formerly affiliated with the Neurological Institute of Presbyterian Hospital and the Beekman-Downtown Hospital; member of the psychiatric staff of the U. S. Army Hospital at Plattsburg, N. Y., during World War I; a trustee of the Alcoholic Foundation; died March 22, aged 77, of coronary occlusion.

⊕ Indicates Fellow of the American Medical Association.

Abbott, William Richard ⊕ Idaho Falls, Idaho; Rush Medical College, Chicago, 1929; fellow of the International College of Surgeons and American College of Surgeons; formerly physician of Bonneville County; served during World War II; affiliated with Idaho Falls Latter-Day Saints' Hospital, where he died March 19, aged 47, of coronary infarction.

Ahrens, Leo Charles, Florissant, Mo.; St. Louis University School of Medicine, 1908; died in St. Charles March 26, aged 70, of coronary occlusion, arteriosclerosis and uremia.

Anthony, Francis Wayland, Haverhill, Mass.; Harvard Medical School, Boston, 1888; member of the American Medical Association; formerly assistant medical examiner and medical examiner of the Fourth District; for many years on the staff of Hale Hospital, where he died March 27, aged 92, of contusion of the spine from a fall and arteriosclerotic heart disease.

Barrett, Omar H., Knightstown, Ind.; Medical College of Ohio, Cincinnati, 1884; died March 31, aged 91, of strangulated hernia and prostatic carcinoma.

Betts, James Alfred ⊕ Easton, Pa.; Jefferson Medical College of Philadelphia, 1909; founder of Betts Private Hospital; died April 2, aged 75, of acute coronary occlusion.

Boon, Charles Lester, Washburn, Ill.; Chicago College of Medicine and Surgery, 1909; member of the American Medical Association; served two terms as president of the board of education of Washburn Township High School; died March 11, aged 67, of heart disease.

Bradford, Edward Burton, Port Norris, N. J.; Jefferson Medical College of Philadelphia, 1901; died in the Bridgeton (N. J.) Hospital March 19, aged 73, of cardiorenal disease.

Buck, Kathleen Loretto, Rochester, N. Y.; Trinity Medical College, Toronto, Canada, 1897; member of the American Medical Association; past president of the Women's Medical Society of New York State; for many years on the staff of St. Mary's Hospital; died March 21, aged 78, of bronchopneumonia.

Carriel, Henry B. ⊕ Elgin, Ill.; Chicago Medical College, 1888; an Associate Fellow of the American Medical Association; member of the American Psychiatric Association; formerly superintendent of Jacksonville State Hospital and the Dixon (Ill.) State Hospital; formerly affiliated with Kankakee State and Elgin State hospitals; died April 1, aged 87.

Chipman, Rupert James, Portland, Ore.; McGill University Faculty of Medicine, Montreal, Canada, 1892; member of the American Medical Association; formerly member of the city board of health; medical examiner for Selective Service during World War II; died March 21, aged 82.

Cooper, Samuel Emerson, Water Valley, Miss.; University of Nashville, (Tenn.) Medical Department, 1897; died in Memphis March 30, aged 77, of arteriosclerotic heart disease.

Craig, Albert James, Fort Washington, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1906; died March 18, aged 67, of coronary thrombosis.

Dolder, Felix Charles, Eyota, Minn.; Northwestern University Medical School, Chicago, 1903; member of the American Medical Association; died in Worrell Hospital, Rochester, Minn., March 19, aged 76, of coronary thrombosis.

Fackt, Marie Philipina, Denver; University of Colorado School of Medicine, Denver, 1936; certified by the National Board of Medical Examiners; died March 24, aged 58, of carcinoma of the breast.

Ginsberg, Edward Louis, Kansas City, Mo.; Kansas City Medical College,' 1903; member of the American Medical Association; served as police surgeon; died March 11, aged 72, of coronary occlusion and hypertension.

Glaeser, Arthur Francis ⊕ Buffalo; University of Buffalo School of Medicine, 1916; past president of the Erie County Medical Society; served overseas during World War I; diagnostician for the county health department; formerly city diagnostician; died in Fort Lauderdale, Fla., March 22, aged 56, of mesenteric thrombosis.

Hamblen, Robert North ⊕ Spokane, Wash.; University of Pennsylvania School of Medicine, Philadelphia, 1909; member of the North Pacific Surgical Association; past president of the Spokane County Medical Society and Public Health League of Washington; formerly vice president of the Washington State Obstetrical Society; served in France during World War I; affiliated with St. Luke's Hospital, Sacred Heart Hospital and Deaconess Hospital, where he died March 18, aged 66, of coronary occlusion.

Hanks, George Wallace, Salt Lake City; Jefferson Medical College of Philadelphia, 1917; formerly associated with the U. S. Public Health Service; formerly affiliated with Veterans Administration Hospital in Bay Pines, Fla.; served during World Wars I and II; died March 15, aged 59, of amyotrophic lateral sclerosis.

Herrington, L. C., Terry, Miss.; Memphis Hospital Medical College, 1904; member of the American Medical Association; died in Baptist Hospital, Jackson, March 18, aged 70, of retroperitoneal adenocarcinoma.

Kerns, Francis John ⊕ Newark, N J.; Georgetown University School of Medicine, Washington, D. C., 1903; past president of the Pathological Society of New Jersey; affiliated with St. Mary's Hospital in Orange and St. Michael's Hospital and Presbyterian Hospital, where he died March 23, aged 71, of cerebral thrombosis.

Knapp, John Christian ⊕ Setauket, N. Y.; Albany (N. Y.) Medical College, 1916; specialist certified by the American Board of Radiology; member of the American College of Radiology; for many years affiliated with St. John's Hospital in Brooklyn; on the staff of Mather Memorial Hospital in Port Jefferson; served overseas during World War I; died March 15, aged 57.

Langston, John Earl, Houston, Texas; Baylor University College of Medicine, Dallas, 1916; member of the American Medical Association, died in March, aged 62, of suffocation and burns.

Lawson, Claudius Simuel, Fairmont, W. Va.; Medical College of Virginia, Richmond, 1910; member of the American Medical Association; died March 22, aged 71, of injuries suffered in an automobile accident.

Ledbetter, Franklin Carver, Greenville, S. C.; Southern College of Medicine and Surgery, Atlanta, 1914; member of the American Medical Association; died March 2, aged 61, of acute coronary occlusion.

Leonard, Bertram Bryant Jr., Yankton, S. D.; State University of Iowa College of Medicine, Iowa City, 1927; member of the American Medical Association; affiliated with Sacred Heart Hospital; died March 28, aged 49, of heart disease.

Long, Merrill Harrison ⊕ Altoona, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1921; affiliated with Altoona and Mercy hospitals; died March 18, aged 53, of diabetes mellitus and pneumonia.

Lowe, William Cook, Queenstown, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1941; served during World War II; died February 3, aged 33.

Lyda, Edwin Earle, San Bernardino, Calif.; St. Louis University School of Medicine, 1941; member of the American Medical Association; affiliated with St. Bernardino's Hospital, where he died March 15, aged 37, of bronchopneumonia, cerebral infarcts, bacterial endocarditis and thrombophlebitis.

McAdams, Edward Calvin ⊕ Wilkinsburg, Pa.; University of Pittsburgh School of Medicine, 1909; served as a visiting physician at Columbia and Western Pennsylvania hospitals and on the staff of St. Joseph's Hospital; died March 12, aged 67, of uremia.

McCandless, Oliver Howard, Independence, Mo.; University Medical College of Kansas City, 1901; specialist certified by the American Board of Radiology; member of the Radiological Society of North America, American Medical Association, and the American College of Radiology; served on the staff of the Independence Sanitarium and Hospital, where he died May 2, aged 75, of carcinoma of the stomach.

McClure, John B., Marietta, Ohio; Medical College of Ohio, Cincinnati, 1896; for many years health commissioner; coroner; affiliated with Marietta Memorial Hospital, where he died March 30, aged 79, of cerebral thrombosis.

McDermott, William Carlton, Peoria, Ill.; Chicago Medical School, 1940; member of the American Medical Association; clinician to the city health department; affiliated with St. Francis Hospital, where he died March 27, aged 40, of uremia, rheumatic heart disease, and pneumonia.

McLandress, Joshua Alexander ⊕ Saginaw, Mich.; Saginaw Valley Medical College, 1902; affiliated with St. Luke's Hospital, St. Mary's Hospital, and the Saginaw General Hospital, where he died March 20, aged 73, of cerebral thrombosis.

McLean, Ray Allyn, Fayette, Iowa; State University of Iowa College of Medicine, Iowa City, 1906; died March 27, aged 73, of heart disease.

McMechen, Harry B., Hannibal, Mo.; Meharry Medical College, Nashville, Tenn., 1911; died April 3, aged 64, of coronary thrombosis.

McSorley, Frederick William, New York; Albany (N. Y.) Medical College, 1909; served during World War I; retired assistant medical director of the Equitable Life Assurance Society of the United States; died March 24, aged 67, of heart disease.

Maker, Louis Edward, Fort Collins, Colo.; Drake University Medical Department, Des Moines, Iowa, 1897; died February 1, aged 77, of cerebral hemorrhage.

Mallow, Edgar H., Columbus, Ohio; Medical College of Ohio, Cincinnati, 1900; died March 24, aged 76, of heart disease.

Mann, Sigmund, Oak Park, Ill.; Chicago College of Medicine and Surgery, 1916; died in the Albert Merritt Billings Hospital, Chicago, April 16, aged 65, of hemorrhagic infarction of the lung.

Mathis, James Edgar, Burns, Tenn.; University of Tennessee Medical Department, Nashville, 1889; died February 3, aged 84, of cerebral hemorrhage.

Miles, Bertram James, Wilkinsburg, Pa.; University of Pittsburgh School of Medicine, 1934; member of the American Medical Association and the American Association of Industrial Physicians and Surgeons; associate surgeon, Columbia Hospital; died March 15, aged 41, of cerebral hemorrhage.

Moore, George Washington, Cincinnati; Cincinnati College of Medicine and Surgery, 1895; died March 14, aged 82, of congestive heart failure and pulmonary edema.

Myers, Henry Dey Sr. ⊕ Howells, Neb.; Drake University College of Medicine, Des Moines, 1906; chairman of the board of health and for many years member of the school board of Howells; died April 3, aged 72, of cerebro-vascular accident.

Payne, John Lewis, Cincinnati; Eclectic Medical College, 1899; formerly on the faculty of his alma mater; died in St. Francis Hospital March 12, aged 77, of cerebral hemorrhage.

Peters, Melvin Lester, Cameron, Mo.; University Medical College of Kansas City, 1905; served two terms as mayor of Cameron; died March 4, aged 78, of cerebral hemorrhage.

Petrik, Albert Charles, Fairhope, Ala.; University of Illinois College of Medicine, Chicago, 1930; member of the American Medical Association; served during World Wars I and II; died in the Veterans Administration Hospital, Montgomery, February 24, aged 55, of cerebral hemorrhage and hypertensive cardiovascular disease.

Pfletschinger, Frederic, New York; Columbia University College of Physicians and Surgeons, New York, 1902; member of the American Medical Association; affiliated with Lutheran Hospital, where he died March 18, aged 71, of arteriosclerotic heart disease.

Pinner, Oskar, Livermore, Calif.; Albertus-Universität Medizinische Fakultät, Königsberg, Prussia, Germany, 1911; affiliated with Veterans Administration Hospital; died in Alta Bates Hospital, Berkeley, March 4, aged 66, of carcinoma.

Prince, Norman Call ⊕ Amarillo, Texas; Denver and Gross College of Medicine, 1907; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; died February 23, aged 66.

Pyles, John Wylie ⊕ New Martinsville, W. Va.; Jefferson Medical College of Philadelphia, 1926; member of the state legislature, 1937-1938; died in the Ohio Valley General Hospital, Wheeling, March 15, aged 50, of bronchopneumonia.

Radcliff, Ernest, Jonesboro, Ill.; Washington University School of Medicine, St. Louis, 1906; member of the American Medical Association; died March 17, aged 74.

Rainone, Michele, Brooklyn; St. Louis University School of Medicine, 1932; member of the American Medical Association; honorary lieutenant of the New York Police Department; for many years on the staff of the Swedish Hospital, died February 3, aged 48, of heart disease.

Rawlins, Elbert Van der Heyden, Roodhouse, Ill.; St. Louis University School of Medicine, 1904; died January 27, aged 76.

Razinsky, Louis ⊕ Warren, Ohio; University and Bellevue Hospital Medical College, New York, 1931; specialist certified by the American Board of Internal Medicine; served in the European theater during World War II; affiliated with St. Josephs Riverside Hospital, where he died March 9, aged 44, of coronary thrombosis.

Reynolds, Clifton Johnson, Bluefield, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1920; specialist certified by the American Board of Urology; member of the American Medical Association and American Urological Association; fellow of the American College of Surgeons; president of the section on urology of the West Virginia State Medical Association; affiliated with Bluefield Sanitarium; died March 24, aged 54, of heart disease.

Richards, Robert Milton, Detroit; Cleveland Medical College, Homeopathic, 1894; served on the staffs of the Grace and Harper hospitals; for many years house physician for the Statler Hotel; died March 17, aged 82, of coronary thrombosis.

Robbins, Charles Mortimer ⊕ Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1914; specialist certified by the American Board of Surgery; fellow of the International College of Surgeons and the American College of Surgeons; past president of the Academy of Medicine of Northern New Jersey; served during World War II; affiliated with Beth Israel, Presbyterian, and Irvington General hospitals; died April 4, aged 61.

Rodholm, Ansgar Kolhede ⊕ Corpus Christi, Texas; University of Chicago School of Medicine, 1938; specialist certified by the American Board of Orthopaedic Surgery; served during World War II; affiliated with Spohn, Memorial, Ghormley Clinic, and Crippled Children's hospitals; died March 20, aged 44, of injuries received in an automobile accident.

Rozanski, Frank Stanley, Worcester, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1937; member of the American Medical Association; public school physician; served during World War II; on the courtesy staffs of St. Vincent and Fairlawn hospitals and the Hahnemann Hospital, where he died March 5, aged 37, of ruptured esophageal varices and cirrhosis of the liver.

Sage, Arthur Gray ⊕ Buffalo; New York University Medical College, New York, 1898; on the staff of the Sisters of Charity and Deaconess hospitals; died March 30, aged 81, of coronary thrombosis.

Swann, Joseph Charles, Wedowee, Ala.; Atlanta Medical College, 1890; died February 20, aged 81, of hypostatic pneumonia, arteriosclerosis, and hypertension.

Tatum, William Jefferson, Richland, Ga.; Southern Medical College, Atlanta, 1896; died February 4, aged 78.

Thompson, Frederick E., Columbus, Ohio; Columbus Medical College, 1888; formerly practiced in Marengo, where he was a member of the Morrow County Board of Health; died March 24, aged 85.

GOVERNMENT SERVICES

DEPARTMENT OF DEFENSE

CREDIT FOR ATTENDANCE AT SESSIONS ON MILITARY MEDICINE AT ATLANTIC CITY SESSION

We have been informed that each medical officer who attends the Sessions on Military Medicine in the Section on Miscellaneous Topics at the Atlantic City Session and registers at the entrance to the Rennaisance Room of the Ambassador Hotel will receive one credit point for attendance at each of the half-day sessions. In other words, if such officer attends both meetings of the Sessions on Military Medicine, he will receive two credit points. If he attends only one, he will receive only one credit point.

PUBLIC HEALTH SERVICE

Industry Needs More Water.—The need of industry for greater supplies of usable water to meet the nation's defense production schedules was emphasized in discussions before the water pollution control advisory board of the Public Health Service, Federal Security Agency, in Washington, D. C., April 18 and 19. During the two-day session the board heard reports on the progress of the cooperative work by the states and the Public Health Service for development of comprehensive water pollution control programs, and on other activities in government and private fields bearing on the pollution problem. The board discussed prospects for sewage and industrial waste treatment plant construction. Arrangements are being made to take care of needs for water supply and sewage disposal plants pending designation of a claimant agency of the government for these functions.

The increased supply of water required by industry to fill defense orders was emphasized by a member of the board. The efforts of industry to increase its supplies of usable water by controlling pollution were described. Industry in the Philadelphia area is spending 25 million dollars to fight pollution, and individual companies are investing millions of dollars a year for treatment works and for research to prevent pollution by improving their "housekeeping practices."

In a review of the work of the President's Water Resources Policy Commission the seriousness of the situation was emphasized.

Laboratory and Field Training Courses.—One hundred and one laboratory and field training courses are being offered this year by the Public Health Service. All courses emphasize training personnel to maintain health services in defense and mobilization. The majority of courses are being conducted by the Communicable Disease Center, Atlanta, Ga. Ten courses will be given by the Environmental Health Center, Cincinnati. The training is primarily for employees of state and local health departments, but employees of nonprofit institutions are eligible. Over 450 foreign public health workers from 70 countries have attended these courses since the end of World War II.

Refresher courses in the principles and practice of laboratory methods for the diagnosis of disease are conducted in Atlanta and Chamblee, Ga., and in Montgomery, Ala. Field training courses in the environmental aspects of disease control are conducted under a cooperative federal-state program to develop more effective field training for all types of public health workers. These courses are held in Atlanta and also at regional training centers located in Amherst, Mass.; Buffalo; Pittsburgh; Bloomington, Ill.; Columbus, Ga.; Topeka, Kan., and Denver. Applicants must be approved by their state health officer. Additional information about the training may be obtained from the Communicable Disease Center.

Training in radiological health, water pollution abatement and milk and food sanitation is conducted by the Environmental Health Center. State and local health department employees should apply for training through their state health officer. Others should apply through the sponsoring agency. Additional information may be obtained from the Training Section, Environmental Health Center, 1014 Broadway, Cincinnati 2.

Training at Communicable Disease Center.—A group of 35 Public Health Service officers are at the Communicable Disease Center, Atlanta, for a month's special training before assignment to the Economic Cooperation Administration to staff public health projects of the special technical and economic mission in southeast Asia. Their training in Georgia will include malaria control, other insect-borne disease control, and rural sanitation. The group, all commissioned officers in the Public Health Service, includes physicians, entomologists, malariologists, nurses, sanitary engineers, sanitarians, and health educators.

Navy and army personnel currently are being trained at the Communicable Disease Center in milk and food sanitation, inspection and sanitary practices in eating places, water pollution control, emergency repair and establishment of water supplies, sewage and garbage disposal, and camp sanitation. In addition, insect and rodent training emphasizes the control of mosquitoes, flies, rodents, and other disease-carriers.

Twelve-week courses in these subjects have been given by CDC, in cooperation with navy instructors, at Annapolis, Md., for navy petty officers and state of Maryland sanitarians. Four-week courses covering the same fields have been given by CDC at Atlanta and Columbus, Ga., for selected army personnel attached to preventive medicine units. Similar training has been given for years by the Communicable Disease Center for its own and state and local health department personnel.

Study of Toxic Residues on Foods.—A western toxicology laboratory is being established jointly by the Communicable Disease Center of the Public Health Service and the State College of Washington's experiment station. The laboratory will be in Wenatchee, Wash., and its staff will include a medical officer, a biologist, and a chemist, as well as other personnel. The new research project was initiated to determine the public health hazards of toxic residues on foods. Little is known, it is pointed out, about the toxicity to humans of residues from the new poisons that have proved so effective in the control of insect pests. The purpose of the investigation is to determine if any injury results from the absorption of such residues over a long period of time. The first study to be made by the new laboratory will be an investigation of the hazards associated with the use of parathion and dichlorodiphenyltrichloroethane (DDT) in apple orchards, as well as the effects of other insecticidal sprays on fruits and vegetables.

Japanese Health Workers in Training.—Thirteen physicians and other health workers from Tokyo, Japan, have arrived in the United States for three months of training under programs supervised by the Division of International Health of the Public Health Service. The training is being conducted under a fellowship program arranged by the Military Government of Japan. Among the trainees are:

Dr. Kiyoshi Ando, chief of the First Bacteria Division, National Institute Health, who will study manufacture and assay of biologics production, especially toxin and antitoxin.

Dr. Junjiro Okanishi, director of the Koichikawa Health Center, who will review communicable disease control in small towns.

Dr. Takehisa Omura, chief of the National Sanatoria Section, Ministry of Welfare, who will study operation of tuberculosis sanatoriums.

Dr. Ken Yanagisawa, Chief of the Tuberculosis Division, National Institute of Health, who will review American tuberculosis control and research programs.

FOREIGN LETTERS

PARIS

Cortisone and Gestation.—Several years ago, Prof. Robert Courrier, general secretary to the Academy of Sciences, studied the influence of desoxycorticosterone on the gestation of rabbits. He found that this substance can replace the corpus luteum hormone; it allows the evolution of pregnancy in the castrated pregnant animal. Recently, in collaboration with Mme. Andrée Collonge, Professor Courrier studied the effect of cortisone on gestation. Rabbits were given daily injections of 25 mg. of cortisone acetate, dissolved in 1 cc. of an excipient, during four to seven days, between the 10th and the 23d days of gestation. This experiment gave the following results: Some rabbits aborted; with separation of the placenta; in others a hemorrhage occurred. When injections were given between the 10th and 14th days of pregnancy, autopsy revealed, besides living fetuses, evidences of resorbed ones; fetuses were diminished in size, from 24 to 20 mm., and placentas were pale. When injections were given between the 15th and the 21st days, all fetuses were found macerated, 15 to 38 mm. in size instead of 54 mm. (normal size), and ovarian yellow bodies were small and pale. The authors presented these results to the Academy of Sciences, March 19, 1951, and concluded by stating that cortisone has a deleterious effect on the gestation of rabbits, especially if injected after the 15th day of pregnancy.

Vitamin B_{12}.—P. L. Drouet, Wolff, Mme. Karlin and G. Rauber presented the results of their researches on vitamin B_{12} levels in human and animal liver "in vivo" to the Medical Society of the Paris Hospitals at the meeting of March 2, 1951. First, the authors studied these levels in the ox and found that they range from 0.5 to 1.5 gamma per gram of liver parenchyma. Having then taken samples from human corpses, they noted a level of 0.5 to 0.7 gamma per gram of body tissue. In six patients with multiple sclerosis, tuberculosis, chronic ethylism or hemolytic icterus, levels varied from 0.478 to 1.14 gamma. All these studies were made on fragments of hepatic tissue weighing 5 to 32 mg. and taken by biopsy puncture. This measurement of vitamin B_{12} levels was effected by a microbiologic process, with the use of a micro-organism (Lactobacillus) that requires for its growth the presence of vitamin B_{12} in the culture. By comparing the growth of organisms with that obtained in mediums containing a titrated solution of crystallized vitamin B_{12}, one can assess the vitamin B_{12} content of liver fragments. After these preliminary studies, which the authors described at a recent meeting of the Academy of Sciences, they studied the vitamin B_{12} hepatic levels in patients with pernicious anemia before and after treatment. In five patients, before treatment, a considerable fall of the hepatic vitamin B_{12} levels (0.023, 0.037, 0.041, 0.071, and 0.14 gamma) was noted; after treatment with an hepatic extract or vitamin B_{12} (30 to 50 gamma per day), there occurred a considerable rise in the hepatic vitamin B_{12} levels (0.068, 0.198, 0.17, 0.166, and 0.272 gamma); these levels were then two and even five times higher than previously. These first results of the researches give for the first time direct evidence in vivo of the role of liver in the physiopathology of pernicious anemia and also suggest research on other vitamins.

International Youth Center.—The official opening of this center, dedicated to "the first year of life," will take place April 19-July 15, 1951. The exhibit will cover (1) infantile mortality; historic evolution and present condition in various countries; mortality according to age and causes, especially during the first months of life; (2) various dangers threatening infants; (3) rachitism and premature weaning; (4) lack of maternal care; (5) sanitary and social protection of youth, and maternal and infantile protection, and (6) normal growth of infants. Conferences and movies will be included. Later, this exhibit will be presented in several large cities of France and foreign countries. The international center intends to organize other exhibits on other subjects relating to youth.

Death of Professor Jacques Roubinovich.—J. Roubinovich, well-known French psychiatrist, died at the age of 88. He was chief of the children's ward at Bicêtre, having succeeded his master, Bourinville. His scientific works are numerous and cover various fields, such as alienation, progressive psychosis, melancholia, dementia precox, general paralysis, epilepsy, idiotism and tics. In all his work, he endeavored to discover the relations between psychic diseases and organic syndromes. He was vice president of the league for mental hygiene. He was also interested in juvenile delinquency, and, with Professor Heuyer, he advocated that juvenile offenders be routinely subjected to a medicopsychologic examination. Roubinovich had a strong personality, which he showed during the occupation of Paris by the Nazis. Arrested by them at the age of 80 and interned at the Rothschild Hospital, he sustained the courage of his companions.

ITALY

Cancer of the Rectum and Its Surgical Therapy.—In discussing the paper by Professor Bastianelli at the National Congress of Surgery (*J. A. M. A.* 146:56 [May 5] 1951) Professor Paolucci, of Rome, reported on about 100 cases of cancer of the rectum treated by him in the past 12 years. Thirty-six of these underwent palliative intervention, while radical surgical intervention was performed in 70 patients. In 1932, at a meeting of Italian surgeons convened to discuss late results of surgery of cancer of the rectum, Professor Paolucci reported on about 30 surgically treated patients. Almost all the patients operated on by perineal approach had died from metastasis or local recurrence of the tumor. Of the patients operated on by abdominoperineal approach, a good percentage survived. He then became convinced that the only truly radical operation giving lasting satisfactory results was abdominoperineal intervention.

Paolucci concluded that the cause of the recurrences was the one stressed by Professor Bastianelli in his report, that the opening of the fascia propria of the rectum actually causes the spread of the tumor. Professor Paolucci admitted, also, that until some time ago he did not care to save the sphincter in those interventions, because he believed that the intervention should be as radical as possible or because the operation may be prolonged when the sphincter is preserved. He now concludes that the sphincter itself should be spared whenever possible.

Professor Ceccarelli, of Padua, stressed the great value of Professor Bastianelli's report, which included the results of his wide experience as a distinguished surgeon. Professor Ceccarelli's own cases of cancer of the rectum are limited to 51, in 17 of which resection was done by perineal approach and in 18 by the abdominoperineal route (Miles technique), while 15 patients were operated on by abdominoperineal approach with preservation of the sphincter, according to Bastianelli's technique. The speaker emphasized the importance of preoperative treatment. He performed resection in 39 cases, in which colostomy was well tolerated; two patients refused to undergo operation, not wishing to have an artificial anus. In 15 cases operated on with preservation of the sphincter, according to the method widely used by Bastianelli, the regular function of the intestine was preserved, which is of capital importance.

Professor Dogliotti, of Turin, stressed some fundamental points and reported on his present surgical procedures, different than those he followed in former years. In general, he is in favor of saving the sphincter in cases of cancer located in the upper part of the ampulla of the rectum and in cancer of the rectosigmoid. Lately, he performs an end to end anastomosis in suitable cases.

The abdominoperineal intervention of Miles gives satisfactory results for cancer of the ampulla. For low located cancer, he previously preferred resection by perineal approach with an artificial anus in the sacral region, but now he is inclined to use the abdominoperineal approach even in these cases.

The preoperative preparation of the patient is of greatest importance. It consists of administration of fluids and isotonic

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The items in these letters are contributed by regular correspondents in the various foreign countries.

sodium chloride solution, blood transfusion and vitamins, evacuation of the intestines and use of antibiotics. Good nutrition of the loop undergoing anastomosis is also of particular importance, as well as the selection of an area in which pulsations of the arterioles may be clearly observed.

Interrupted sutures should be made with silk, in three layers; antibiotic powder should be dusted between the layers and on the exterior surface. The operative death rate registered was very small.

Oral Administration of Streptomycin.—At the Medico-Surgical Society of the Romagna, presided over by Professor De Castro, Professor Jasonni presented a report on the oral use of streptomycin in some infections of the intestine and of the biliary tract. He discussed the present knowledge of oral administration of this antibiotic, its insufficient absorption by this route, and the high concentration of streptomycin in intestinal excretion. It is possible to use streptomycin by oral route in some intestinal infections caused by very sensitive germs, and favorable results have been reported in acute gastroenterocolitis of infants and young children caused by Bacterium coli, Proteus vulgaris, Salmonella and other gram-negative organisms. More doubtful are the data on salmonellosis in adults, in which condition streptomycin is given orally by surgeons especially before operation on the large intestine, in order to eliminate the coli bacilli from the feces. In typhoid and paratyphoid, the effects were not very definite and are not comparable to those obtained with chloramphenicol.

After these preliminaries, based on a survey of the literature, Professor Jasonni reported the results obtained in his own cases. In enteritis of children, even when severe and refractory to other methods of treatment, oral streptomycin therapy proved definitely beneficial. Tolerance of adequate doses also has been gratifying in small children. In cases of acute enterocolitis of adults, accompanied sometimes by alarming gastrointestinal manifestations and by severe general repercussions, highly satisfactory results were obtained with oral administration of streptomycin. Streptomycin has been administered orally as an adjuvant to chloramphenicol therapy in seven cases of typhoid; seven recoveries were reported without recurrence, accompanied by a particularly rapid sterilization of the feces.

The results obtained by oral administration of streptomycin in some cases of infectious jaundice due to ascending angiocholitis are also interesting. Because of these favorable observations, the speaker proposes to try oral administration of streptomycin in ascending cholangitis due to micro-organisms especially sensitive to the antibiotic.

NORWAY

Care of the Aged.—The Norwegian National Association Against Tuberculosis and for Health was originally founded only for combating tuberculosis. The latter part of its present title is a comparatively late addition and is an indication that this rich and influential body has greater ambitions than fighting tuberculosis. One of the most recent digressions from tuberculosis is the welfare of the aged, for whom health control stations and consultative stations are soon to be established. The association is also prepared to stimulate and support scientific investigations concerning the health problems of the aged. It has also recently issued a pamphlet on the health of the aged, in which Dr. Per Hanssen outlines the principles to be followed. The municipal authorities in Oslo are now engaged on the provision of a new infirmary for the aged with some 400 beds in connection with the large Ullevaal city hospital. This infirmary will, it is hoped, be available for use in 1952. However, there will remain a need for some 800 more such beds for the aged. The Oslo medical society is taking an active part in welfare schemes for the aged; it recently organized a meeting at which the subject was discussed from various angles. If the age distribution of the population of the whole of Norway conforms to the calculations of the statisticians, the country will in 1975 have some 150,000 more pensioners and persons unfit for work than it has at the present time.

Paintings in Hospital Wards.—A small storm occurred recently when some doctors in Bergen declined an offer of paintings to be hung in their respective hospitals. Prof. Gabriel Langfeldt, who is in charge of the university psychiatric clinic in Oslo, circulated a questionnaire among his patients, who were given no time in which to consult each other and influence each other in the answers they gave. They were asked: 1. Do you like the pictures on the walls? 2. What effect do they have on you? Do they soothe you, cheer you, depress you, have no effect on you or are they repugnant to you? 3. Would you like some of the pictures to be removed? 4. If so, which? The answers to these questions showed that 62% of the patients liked the pictures and 25% did not like them, while 13% both liked and disliked them. The pictures had a soothing or cheering effect on 57%, no particular effect on 24% and a depressing or repugnant effect on 19%. The wish that all the pictures be removed was expressed by 16%, that none of them should be removed by 71% and that some of them should be removed by 13%.

It will thus be seen that most of these resident hospital patients approved of the pictures on their walls, finding them beneficial. But it was remarkable that, in as high a proportion as 19%, dislike of the pictures was expressed. These pictures were colored lithographs of modern painters, some of whose works were subjected to devastating criticism. Professor Langfeldt's reaction to this poll is to admit that there was some justification for the attitude of the hospital doctors in Bergen. He has decided to remove from the wards to the corridors of his hospital those pictures to which some of his patients objected. In their place he will hang peaceful landscapes and the like.

Better Remuneration for Junior Hospital Appointments.—Hitherto the pay of junior medical officers in hospital has been very meager. The hospital authorities recently have had to reconsider the situation in the light of a shortage of doctors, the younger generation of doctors having formed the Association of Junior Doctors, with Dr. Kaare Schanke as its chairman. A year ago the lowest paid intern received kr. 7,825, a senior intern kr. 9,825, and the chief's second in command, "the reserve doctor," kr. 11,825. The scale of remuneration was practically the same whether the hospitals belonged to a municipality or the state. The interns in the state hospitals had a pension scheme to which contribution was taken out of their salaries.

The Association of Junior Doctors is affiliated with the senior body, the Norwegian Medical Association, and is in a fairly strong position to bargain for its members. Negotiations last August between it and certain municipal authorities led to a stalemate. The doctors did not strike outright, but they did not apply for vacancies when they occurred on the old scale of remuneration. With the supply of new junior medical officers thus effectively cut off, it became obvious during last autumn that the position would be quite untenable for the hospitals at the beginning of 1951. Resumed negotiations led to a salary for the lowest paid intern of kr. 11,156 and a corresponding rise for the senior appointments.

Compulsory BCG Vaccination.—When, in 1947, the Norwegian parliament made BCG vaccination compulsory, the public health authorities in many other countries must have wondered whether this bold pioneer step would be successful. At a recent meeting of the Norwegian Medical Tuberculosis Society, Dr. S. Garegg of the tuberculosis department of the Oslo public health service quoted some figures which throw light on this subject. He was dealing with medical examinations of persons employed in industry. Altogether, 32,982 persons employed by 399 industrial concerns were subjected to mass radiography and tuberculin testing in 1949. In 81.7% a positive tuberculin reaction and in 18.3% a negative tuberculin reaction was observed. As great a proportion as 83.3% of the negative reactors consented to BCG vaccination. This percentage was only 42.5 in 1945, only 44.1 in 1946 and only 36.4 in 1947, the year in which BCG vaccination was made compulsory. The pressure put on negative reactors to accept BCG vaccination is of the persuasive order, and it may well be that many accept such vaccination not because they are forced against their will but because the fact of its being compulsory convinces them of its intrinsic merits. The figures just quoted may not necessarily be proof of the success of legislative compulsion, but they are at any rate suggestive of it.

CORRESPONDENCE

EVALUATION OF NEW DRUGS

To the Editor:—It is pertinent to keep the published record clear regarding the standards and ideals of scientists and physicians of the United States. Especially is this necessary in matters involving new and allegedly useful methods of handling disease. Distressing, therefore, is the spectacle of reputable scientific medical men promoting persuasive but dubious arguments and evidence on a material for use in cancer which has suspicious commercial association and on which satisfactory chemical analysis or pharmacological appraisal has not yet been issued in customary scientific or medical publications.

Those who would like to know what technical procedures are available for the reasonably satisfactory introduction of new therapeutic agents may refer to the following publications: "The Pharmacologic Evaluation of New Drugs" (*J. A. M. A.* **93**:1632 [Nov. 23] 1929); "Laboratory and Clinical Appraisal of New Drugs" (*J. A. M. A.* **126**:958 [Dec. 9] 1944); "Current Pharmacology: General Principles and Practical Clinical Application" (*J. A. M. A.* **138**:730 [Nov. 6] 1948), and the current issue of "New and Nonofficial Remedies."

It is a source of wonderment that respected scientific medical men interested in developing new therapeutic agents should neglect the suggestions offered in these publications.

Chauncey D. Leake, Ph.D.,
Vice President,
University of Texas, for the
Medical Branch, Galveston.

MULTIPHASIC SCREENING

To the Editor:—I feel reasonably certain that Dr. Wilson G. Smillie would be greatly disappointed if nobody were to take issue with some of the thoughts expressed in his provocative article in the April 21, 1951, issue of The Journal. In my opinion, Dr. Smillie does an excellent job of presenting the pro's and con's of multiphasic screening, but the conclusions he reaches do not seem to follow logically from the premises he establishes. Any procedure which is relatively inexpensive and which will bring to light "27 to 47 cases of previously undetected serious pathological conditions" in every 1,000 persons examined, and a considerably larger number of less serious abnormalities, can hardly be characterized as "unsound in its concepts, untenable in its principles and indefensible in its logic."

If, as Dr. Smillie asserts, it is "a complete wastage of time and effort" to include chest x-ray examinations of school children in a screening survey, there is no reason why this particular procedure *cannot be omitted*, and the same can be said for cancer detection tests in persons under 35 years of age. All syphilologists do not share Dr. Smillie's lack of interest in serological tests in persons over 40 years of age.

One would hardly disagree with Dr. Smillie that it would be preferable for an *individual* to "see his physician first and . . . be referred by his physician to the health center for the various diagnostic aids." The simple fact is, as Dr. Smillie surely knows, that people do not go to their physicians for preventive services even when they have physicians to go to. Up until the time of the introduction of the "scare" influence of cancer detection examinations and the subsequent development of multiphasic screening programs, all efforts to have people submit to periodic or preventive examinations were a dismal failure. It seems to me that the important consideration is to find incipient disease through any practicable procedure and that the utilization of multiphasic techniques does not necessarily exclude private physicians from making what contributions they can to case finding and early diagnosis.

I agree with Dr. Smillie that it is important to avoid imparting a false sense of security to persons in whom no abnormalities are detected in a screening examination. It should be a simple matter to accomplish this through proper wording of the report.

Dr. Smillie very properly makes a plea for adequate medical care for everyone. Up to the present time, no completely satisfactory method of accomplishing this has been found, although great strides are being made. Until we arrive at the millenium, we should take full advantage of those measures that are available and practicable, even though they may not be perfect.

Leonard J. Goldwater, M.D.,
Professor of Industrial Hygiene,
Columbia University
School of Public Health,
New York 32.

MISCELLANY

STATEMENT ON ANTIHISTAMINICS

By Committee on Public Health Relations of The New York Academy of Medicine

The Committee on Public Health Relations of The New York Academy of Medicine is concerned over the continued emphasis on the use of antihistaminic drugs for the prevention and treatment of the common cold. These drugs have been used successfully for several years by the medical profession for the treatment of allergic states. Studies of the common cold have shown that it is not due to a single cause. "Colds" may be caused by a variety of organisms and conditions. The symptoms vary with the cause, the season, the person's susceptibility, and many other factors. If these symptoms are caused by allergy, the antihistaminic drugs may give relief, but no known effect on a virus or bacterial invasion has yet been demonstrated. In evaluating reports that the antihistaminic drugs have stopped colds when taken within the first hour, it should be borne in mind that it is extremely difficult to judge within such a short time whether one actually has a cold. Again, colds may be so slight that they vanish within twenty-four or forty-eight hours without treatment. As a matter of fact, many persons who have been given placebos, or inert substances, instead of the antihistaminics have frequently done as well as those treated with the drugs, and sometimes even better.

The use of antihistaminic drugs is not without hazards. In some persons troublesome reactions occur. Fortunately, most of the reactions are mild; they may, however, have serious results. For example, the drugs may induce drowsiness or dizziness which may lead to accidents, particularly among drivers of automobiles, pilots of aircraft or operators of machinery, in whom efficiency and judgment may be temporarily impaired.

Severe reactions are not common, but they do occur, and their mechanism is not yet well understood. Children appear to be more susceptible to the drugs than adults, and are more subject to convulsions. Eight infants under two years of age are reported to have died from the effects of antihistamines, and several others are reported to have had convulsions. Most of these cases resulted from accidental overdosage. The ill effects of the antihistamines are most frequently exerted on the nervous system, but they have been known to affect the heart and the digestive tract, and there have been a few instances in which granulocytopenia, a serious disease in which the white blood cells are diminished, has been traced to these agents.

Packages of antihistaminic drugs sold to the public carry directions for dosage, but this is not sufficient protection against accidental overdosage or other hazardous use, especially in children. Allergists have estimated that at least 20 per cent of the people who take antihistamines in the doses recommended will experience undesirable if not dangerous reactions. Several persons are reported to have attempted suicide by taking excessive doses of antihistaminic drugs, and one succeeded.

Another hazard of the antihistaminic drugs as a cure for colds is that what may appear to be a "cold" is really the beginning of a serious infection and this may be neglected while the sick person is taking antihistamines on his own responsibility.

There have been cases of pneumonia in which antihistamines have been taken for several days before the real nature of the disease was discovered, and in this way valuable time for proper treatment of the disease has been lost.

It is the opinion of the Committee on Public Health Relations of The New York Academy of Medicine that the antihistaminic preparations are of no value in the treatment of true colds and that the public should be warned of the hazards attending their use.

MEDICAL MOTION PICTURES

The Migraine Headache: 16 mm., color, sound, showing time 22 minutes. Prepared by A. P. Friedman, M.D., Director, Headache Clinic, Montefiore Hospital, New York; Associate Professor, Neurology, College of Physicians and Surgeons; Regional Consultant, Veterans Administration. Produced in 1950 by Sturgis-Grant Productions, 314 East 46th St., New York 17. Procurable on loan from Sandoz Pharmaceuticals Inc., 552 West Lake St., Chicago 6.

This motion picture follows one patient from early childhood through to the present time, when she is about 22 years of age. Emphasis is placed on the various tests employed in the proper diagnosis of her vascular headache, such as the taking of a complete case history and physical and neurological examination. The method of treatment for aborting the acute attack with vasoconstrictors is also shown.

The film presents a somewhat distorted discussion of the etiology of migraine, since it leans so heavily on the psychosomatic aspects of the syndrome. Thus, the endocrine and allergic theories are given cavalier treatment, the eye is disregarded and the relation with epilepsy is ignored. Excellent animated sequences of the pathologic physiology of migraine are marred by the failure of the narration to deal with the vasoconstriction phase in any detail. The percentage of relief cited in the discussion of therapy is high and is the experience of a single investigator; this should be made clear or verified by other authority.

The use of both black and white and color film in this picture is not good technic, and the abstract sequence which illustrates an unstable personality is very confusing. Otherwise the photography, animation and narration are well done.

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John apparently had a happy childhood except for a few incidents, such as a feeling of rejection when his younger brother was born, his mother's annoyance at him for making noise when she became ill and the beating that his father gave him for fighting with Bob, his younger brother, over a snowhouse. After his mother dies, an aunt comes to live with them; she is neither understanding nor sympathetic toward his great emotional needs.

While John is in college, his father dies; he has to give up his ambition to become a writer. He takes over his father's business in order to send his younger brother to college, and Bob's success becomes his own. However, after Bob leaves town, writes a book and is married, John feels so completely alone that he becomes depressed; these events coincide with the loss of the important business account. John cannot admit to himself that he is jealous and resentful of Bob's greater success. Even though he is now happily married, he still does not feel that he deserves this happiness; he becomes a problem and a mystery to his wife and business associates. His difficulty lies far back in his emotional history. The world cannot see and John cannot allow himself to acknowledge his feelings of jealousy. Therefore, he becomes a victim of his conscience and cannot enjoy what he feels he does not deserve.

The presentation of the subject's life to illustrate the illness is very well done, and the effectiveness of the illustration is made stronger by opening with the climax of the subject's life experiences that have resulted in the present illness or depression. With the present illness in mind, the depiction of salient features in the individual's development are more meaningful to the viewer.

This motion picture is similar to others in the series. If taken with the other films, it is more understandable—alone it seems to go into the subject too abruptly, particularly for a nonpsychiatrically oriented audience. It is rather weak on the therapy side; treatment possibilities and the prognosis are mentioned only in passing. However, it is the best in the series.

The child's reaction to unpleasant experiences that are interpreted as rejection by him is vividly done. A weakness is in the gap between episodes in early childhood and early adulthood. Although it may be difficult to film events in the adolescent period, it would be helpful if some attention were given to these years, tying in developments in this period with those of early childhood and the present illness.

The film is suitable for medical students, medical society meetings, general practitioners, social workers, nursery school teachers and nurses. However, a psychiatrist should be present to lead a discussion to the interests of the group seeing the film and to point out the contributions that could be made by that particular group in preventive mental hygiene. The photography and narration are well done.

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The diagnosis of influenza consists of isolation of the virus (A, A′, or B) by inoculating chick embryos with washings of the nose and throat during the acute stage of the disease and of demonstration of immune antibodies in the blood about 10 days after onset. The technic of these tests is so lucidly and minutely presented that one gets a much better picture of all procedures than by reading and reviewing of illustrations. Step by step presentation, the emphasis of details, the use of diagrams and closeups, and good narration all contribute to make the viewing of this film a worth while educational experience of special interest to virologists, bacteriologists, public health and general laboratory technicians, medical students and all others who may be interested in the subject. The photography and narration are well done.

Today and Tomorrow: 16 mm., color, sound, showing time 5 minutes. Sponsored by The Muscular Dystrophy Association, 177th Street, and Harlem River, New York 53. Produced by and procurable on loan from Films for Industry, 135 West 52nd Street, New York.

This is a fund-raising film which shows, in the surroundings of a public playground, children who are afflicted with progressive muscular dystrophy. Against this background and with normal children as playmates, the helplessness of these children is accentuated. Their lack of balance and muscular weaknesses are exhibited as they try to play in the manner of normal children. The disease of all the children shown is of the clinical pseudohypertrophic muscular dystrophic type, in various stages of this most prevalent and progressive form.

The film contains a strong emotional appeal which well accomplishes the purpose of arousing the interest of the general public in sufferers of this disease, but it is lacking in specific information as to where these interests can be directed. It would be of interest mainly to lay audiences. The photography and sound are good.

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Sodium Citrate in Lead Poisoning.—Four patients were treated for lead poisoning with sodium citrate as the main component of therapy. Lead poisoning was acute in three patients and chronic in one. Doses of 4 gm. of sodium citrate four times daily by mouth for one week to one month were adequate for control of the symptoms. Studies of the lead excreted in the urine in these four cases did not warrant the conclusion that sodium citrate increases lead excretion. Increased coproporphyrinuria was observed during the acute illness in all four of the patients and well before the acute episode in at least two of them. In all patients the urinary lead and coproporphyrin values showed relatively good correlation. In all patients the sign of coproporphyrinuria was seen much earlier than the stippling of red blood cells. The mechanism of the coproporphyrinuria of plumbism is not definitely known.

A.M.A. Arch. Neurology and Psychiatry, Chicago

65:265-412 (March) 1951

*Third Ventriculostomy in Treatment of Obstructive Hydrocephalus in Children. H. C. Voris.—p. 265.
EEG and Cortical Electrograms in Patients with Temporal Lobe Seizures. H. Jasper, B. Pertuisset and H. Flanigin.—p. 272.
Permanency of Glutamic Acid Treatment. F. T. Zimmerman and B. B. Burgemeister.—p. 291.
Syndrome of Crocodile Tears. J. Chorobski.—p. 299.
Pain Below Level of Injury of Spinal Cord. L. J. Pollock, M. Brown, B. Boshes and others.—p. 319.
Prognosis in Topectomies and Lobotomies Relative to Body Type. N. S. Kline and A. M. Tenney.—p. 323.
Studies on Iron Content of Cerebrospinal Fluid in Different Psychotic Conditions. H. E. Lehmann and V. A. Kral.—p. 326.
Palmomental Reflex: Physiological and Clinical Analysis. J. R. Blake Jr. and E. C. Kunkle.—p. 337.
*Occlusion of Internal Carotid Artery. M. Fisher.—p. 346.
Intramedullary Tumors of Spinal Cord and Gliomas of Intradural Portion of Filum Terminale: Fate of Patients Who Have These Tumors. H. W. Woltman, J. W. Kernohan, A. W. Adson and W. M. Craig.—p. 378.

Obstructive Hydrocephalus in Children.—Hydrocephalus due to an obstruction in the ventricles or subarachnoid spaces is commoner in the infant than is generally supposed. A frequent cause of obstruction in infantile hydrocephalus is the Arnold-Chiari malformation, associated with spina bifida in many patients, especially those with myelocele. Suboccipital exploration was carried out in a number of these cases, without lasting relief of symptoms. Third ventriculostomy, i. e., establishment of a free communication between the third ventricle and the peduncular cisterns was then tried. The transfrontal approach was satisfactory in older children, but did not work out well in infants. Therefore a trial of the lateral or temporal approach was made. This has proved satisfactory in 10 patients with obstructive hydrocephalus associated with spina bifida and presumably due to the Arnold-Chiari syndrome. The patients were followed from six months to four years, and the results were excellent, with cessation of abnormal enlargement of the head and absence of increased intracranial pressure. Ventriculostomy by the lateral or temporal approach should be reserved for patients in whom the cause of the obstruction cannot be readily treated by direct surgical attack and in whom there is no evidence of obstruction of the basilar subarachnoid cisterns. According to the author, it is the procedure of choice for infants with obstructive hydrocephalus due to the Arnold-Chiari malformation.

Occlusion of Internal Carotid Artery.—Eight cases of occlusion of the internal carotid artery in men between the ages of 49 and 68 were studied, four of which were verified by postmortem examination. In two cases arteriographic or surgical confirmation of the diagnosis was made, while in the remaining two cases the diagnosis was made clinically. All the patients were seen on the wards of two general hospitals within a period of six months. Occlusion of the internal carotid artery is much commoner than has heretofore been believed. The clinical picture is highly characteristic, although variable. The basic feature is hemiplegia of rather severe degree, preceded by premonitory paralysis, paresthesia, blindness, dizziness, aphasia, or unconsciousness. Necropsy in the author's cases revealed that the occlusion of the internal carotid artery is usually in the region of the sinus and that the basic pathological process is atherosclerosis. Changes in the brain tend to be localized in the territory of the middle and anterior cerebral arteries, and the extent of the brain lesion may be explained partly by the anatomic pattern of the circle of Willis and partly by other, unknown, factors. Fleeting neurological symptoms, previously attributed to vasospasm, now have a pathological substratum that will serve for their further study. Intermittent, migraine-like headache was frequently observed alternating with the fleeting symptoms. It was steady, never throbbing, and was situated above the ipsilateral eye. Headache usually ceased after the onset of hemiplegia. Hemiplegia of unknown cause in younger persons is often due to disease of the internal carotid artery. The absence of carotid pulsation in the neck during the acute phase of hemiplegia may be diagnostic. Postoperative hemiplegia, as well as stroke following vascular collapse, is often due to thrombosis of the internal carotid artery distal to extreme atherosclerotic narrowing in the region of the carotid sinus. Unexplained cerebral embolism may arise from thrombotic material lying in the carotid sinus.

Alabama State Medical Assn. Journal, Montgomery

20:277-308 (Feb.) 1951

Treatment of Pyogenic Dermatoses. R. O. Noojin.—p. 277.
Psychosomatic Illness. J. W. MacQueen and F. A. Kay.—p. 283.
Dosage of Drugs—Infancy and Childhood. R. E. Cloud.—p. 287.
Kaposi's Varicelliform Eruption: Report of Fatal Case. W. H. Blank. —p. 289.

20:309-344 (March) 1951

Clinical Effects of ACTH and Cortisone in Certain Diseases. H. L. Holley.—p. 311.
ACTH and Cortisone in Blood Disorders and Related Neoplastic Diseases. W. H. Riser Jr.—p. 317.
Physiologic Effects, Contraindications, Dosage, and Control of ACTH and Cortisone Therapy. J. B. McLester.—p. 319.

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Titles marked with an asterisk (*) are abstracted.

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Compensation Aspects of Myocardial Infarction in Industrial Medicine. J. H. Thompson.—p. 292.
Report on Industrial Hygiene in Western Zone of Germany. I. R. Tabershaw.—p. 298.

Sodium Citrate in Lead Poisoning.—Four patients were treated for lead poisoning with sodium citrate as the main component of therapy. Lead poisoning was acute in three patients and chronic in one. Doses of 4 gm. of sodium citrate four times daily by mouth for one week to one month were adequate for control of the symptoms. Studies of the lead excreted in the urine in these four cases did not warrant the conclusion that sodium citrate increases lead excretion. Increased coproporphyrinuria was observed during the acute illness in all four of the patients and well before the acute episode in at least two of them. In all patients the urinary lead and coproporphyrin values showed relatively good correlation. In all patients the sign of coproporphyrinuria was seen much earlier than the stippling of red blood cells. The mechanism of the coproporphyrinuria of plumbism is not definitely known.

A.M.A. Arch. Neurology and Psychiatry, Chicago

65:265-412 (March) 1951

*Third Ventriculostomy in Treatment of Obstructive Hydrocephalus in Children. H. C. Voris.—p. 265.
EEG and Cortical Electrograms in Patients with Temporal Lobe Seizures. H. Jasper, B. Pertuisset and H. Flanigin.—p. 272.
Permanency of Glutamic Acid Treatment. F. T. Zimmerman and B. B. Burgemeister.—p. 291.
Syndrome of Crocodile Tears. J. Chorobski.—p. 299.
Pain Below Level of Injury of Spinal Cord. L. J. Pollock, M. Brown, B. Boshes and others.—p. 319.
Prognosis in Topectomies and Lobotomies Relative to Body Type. N. S. Kline and A. M. Tenney.—p. 323.
Studies on Iron Content of Cerebrospinal Fluid in Different Psychotic Conditions. H. E. Lehmann and V. A. Kral.—p. 326.
Palmomental Reflex: Physiological and Clinical Analysis. J. R. Blake Jr. and E. C. Kunkle.—p. 337.
*Occlusion of Internal Carotid Artery. M. Fisher.—p. 346.
Intramedullary Tumors of Spinal Cord and Gliomas of Intradural Portion of Filum Terminale: Fate of Patients Who Have These Tumors. H. W. Woltman, J. W. Kernohan, A. W. Adson and W. M. Craig.—p. 378.

Obstructive Hydrocephalus in Children.—Hydrocephalus due to an obstruction in the ventricles or subarachnoid spaces is commoner in the infant than is generally supposed. A frequent cause of obstruction in infantile hydrocephalus is the Arnold-Chiari malformation, associated with spina bifida in many patients, especially those with myelocele. Suboccipital exploration was carried out in a number of these cases, without lasting relief of symptoms. Third ventriculostomy, i. e., establishment of a free communication between the third ventricle and the peduncular cisterns was then tried. The transfrontal approach was satisfactory in older children, but did not work out well in infants. Therefore a trial of the lateral or temporal approach was made. This has proved satisfactory in 10 patients with obstructive hydrocephalus associated with spina bifida and presumably due to the Arnold-Chiari syndrome. The patients were followed from six months to four years, and the results were excellent, with cessation of abnormal enlargement of the head and absence of increased intracranial pressure. Ventriculostomy by the lateral or temporal approach should be reserved for patients in whom the cause of the obstruction cannot be readily treated by direct surgical attack and in whom there is no evidence of obstruction of the basilar subarachnoid cisterns. According to the author, it is the procedure of choice for infants with obstructive hydrocephalus due to the Arnold-Chiari malformation.

Occlusion of Internal Carotid Artery.—Eight cases of occlusion of the internal carotid artery in men between the ages of 49 and 68 were studied, four of which were verified by postmortem examination. In two cases arteriographic or surgical confirmation of the diagnosis was made, while in the remaining two cases the diagnosis was made clinically. All the patients were seen on the wards of two general hospitals within a period of six months. Occlusion of the internal carotid artery is much commoner than has heretofore been believed. The clinical picture is highly characteristic, although variable. The basic feature is hemiplegia of rather severe degree, preceded by premonitory paralysis, paresthesia, blindness, dizziness, aphasia, or unconsciousness. Necropsy in the author's cases revealed that the occlusion of the internal carotid artery is usually in the region of the sinus and that the basic pathological process is atherosclerosis. Changes in the brain tend to be localized in the territory of the middle and anterior cerebral arteries, and the extent of the brain lesion may be explained partly by the anatomic pattern of the circle of Willis and partly by other, unknown, factors. Fleeting neurological symptoms, previously attributed to vasospasm, now have a pathological substratum that will serve for their further study. Intermittent, migraine-like headache was frequently observed alternating with the fleeting symptoms. It was steady, never throbbing, and was situated above the ipsilateral eye. Headache usually ceased after the onset of hemiplegia. Hemiplegia of unknown cause in younger persons is often due to disease of the internal carotid artery. The absence of carotid pulsation in the neck during the acute phase of hemiplegia may be diagnostic. Postoperative hemiplegia, as well as stroke following vascular collapse, is often due to thrombosis of the internal carotid artery distal to extreme atherosclerotic narrowing in the region of the carotid sinus. Unexplained cerebral embolism may arise from thrombotic material lying in the carotid sinus.

Alabama State Medical Assn. Journal, Montgomery

20:277-308 (Feb.) 1951

Treatment of Pyogenic Dermatoses. R. O. Noojin.—p. 277.
Psychosomatic Illness. J. W. MacQueen and F. A. Kay.—p. 283.
Dosage of Drugs—Infancy and Childhood. R. E. Cloud.—p. 287.
Kaposi's Varicelliform Eruption: Report of Fatal Case. W. H. Blank.—p. 289.

20:309-344 (March) 1951

Clinical Effects of ACTH and Cortisone in Certain Diseases. H. L. Holley.—p. 311.
ACTH and Cortisone in Blood Disorders and Related Neoplastic Diseases. W. H. Riser Jr.—p. 317.
Physiologic Effects, Contraindications, Dosage, and Control of ACTH and Cortisone Therapy. J. B. McLester.—p. 319.

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1940 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American J. Digestive Diseases, Fort Wayne, Ind.

18:43-76 (Feb.) 1951

Physiological Study of Two Proteases of Gastric Juice. M. J. Demole and G. Milhaud.—p. 43.
*Are Achlorhydria, Achylia Gastrica and Pernicious Anemia Precancerous Conditions? F. S. Weinberg.—p. 45.
Complications of Chronic Ulcerative Colitis. M. L. Brown, A. M. Kasich and B. Weingarten.—p. 52.
*Appraisal of Psychological Relationship of Coronary Disease to Peptic Ulcer. M. Feldman and S. Morrison.—p. 55.
Immediate Ambulation. A. J. Cantor.—p. 56.
Successful Ointment Therapy for Pruritus Ani. L. G. Bodkin and E. A. Ferguson Jr.—p. 59.
Chronic Peptic Duodenal Ulcer with Cancerous Transformation. E. F. Geever, V. L. Bolton and N. W. Fawcett.—p. 61.
Case of Acute Cholangitis (Post-Operative) Due to Proteus Vulgaris Sepsis Treated with Aureomycin. A. A. Goldbloom and M. Golbey.—p. 63.
Incomplete Obstruction of Small Intestine. A. Strelinger.—p. 66.
Demonstration of Tumor Involving Pancreas Through Use of Duodenal Drainage and Intravenous Injection of Secretin. N. R. Bothereau, F. H. Draper and G. E. Gibbs.—p. 70.

Pernicious Anemia and Cancer.—Since the introduction of liver therapy for pernicious anemia there have been reports commenting on the concurrence of pernicious anemia and cancer of the stomach. Authors who favor the idea that there is a connection between the two conditions consider chronic atrophic gastritis a common link. But Weinberg says that this link does not exist. In pernicious anemia there is achylia gastrica, which has nothing in common with achlorhydria but lack of hydrochloric acid. Achylia gastrica is a clinical entity with absolute lack of gastric secretion and disturbance of chymification and motility. The pathological changes are different as well: In achylia gastrica there is no gastritis; in achlorhydria, as it is found in cancer of the stomach, there is pangastritis. Weinberg stresses that achylia gastrica and pernicious anemia have no connection with cancer of the stomach and that they cannot be considered precancerous conditions. It has never been proved whether chronic atrophic gastritis, which leads to achlorhydria, is primary or secondary to gastric cancer. It has been shown, however, that over 80% of all persons in the cancer age have the same gastritic changes as have been found in stomach cancer; these changes are the "physiologic gastritis of old age" and cannot, therefore, be the basis for the development of malignancy. If we eliminate gastritis as a cause, how can we explain the increase in frequency of cancer of the stomach in the course of pernicious anemia found in some statistics? Two explanations have been considered: (1) the prolongation of life in pernicious anemia due to liver therapy and (2) a carcinogenic agent in the liver. The age increase does not seem to be of importance, because both diseases start at about the same age, and the prolongation of life is not sufficiently extensive to be significant. That the development of gastric cancer may be due to a carcinogenic agent in the liver can be demonstrated only by the avoidance of liver preparations and the substitution of stomach preparations that contain the intrinsic factor.

Relationship of Coronary Disease and Peptic Ulcer.—To investigate the correlation between peptic ulcer and coronary occlusion the authors made a survey of 1,522 autopsies. Peptic ulcer was detected in 101 patients (6.6%). The incidence of peptic ulcer was 9% among the 753 patients with arteriosclerosis of the coronary arteries and 10.5% in the 152 patients with coronary occlusion. While this shows a somewhat higher incidence of peptic ulcer in patients with coronary disease, other investigators have found in autopsy studies that peptic ulcer occurred with equal frequency in patients without coronary disease. In the second part of this report the authors give attention to clinical factors common to both diseases. Heightened excitability of the vagus is the common denominator. The diseases are similar in that they occur in nervous, unstable persons, have three basic phenomena (hypersensitivity, hyperirritability, and hyperactivity), occur more commonly among the more intelligent and educated people, have periodicity of symptoms, and similar personality changes. The two conditions generally originate at different age periods, but this may be due to blood vessel changes and to the difference in susceptibility of certain organs at certain ages. The aggravating effects in both are not too dissimilar, and both occur predominantly in males who live and work under stress. In the background of the development of peptic ulcer there are frequently endocrinologic and nervous factors associated with the transition from adolescence to manhood, whereas in coronary disease there is the transition from middle age to presenility. In other words, there may possibly be a similarly acting organic change, vascular in origin, endocrinologically and neurogenically initiated.

American Journal of Medicine, New York

10:131-274 (Feb.) 1951

*Effect of Adrenocorticotropic Hormone (ACTH) on Beryllium Granulomatosis and Silicosis. B. J. Kennedy, J. A. P. Pare, K. K. Pump and others.—p. 134.
Effects of Cortisone and ACTH in Cases of Chronic Pulmonary Disease with Impairment of Alveolar-Capillary Diffusion. J. R. West, J. H. McClement, D. Carroll and others.—p. 156.
Effect of ACTH in Chronic Lung Disease: Study of Five Patients. M. Galdston, S. Weisenfeld, B. Benjamin and M. B. Rosenbluth.—p. 166.
Expectoration of Abnormal Substances and Particles Including Parasites: *Their Diagnostic Significance.* A. G. Cohen.—p. 182.

ACTH in Beryllium Granulomatosis and Silicosis.—The lesions of beryllium granulomatosis consist of multiple granulomas, increased fibrosis in the interalveolar septa and in the granulomas, and dense collagen deposits. A cellular reaction, predominantly of lymphocytes and mononuclear cells, may be found in the interalveolar walls, between focal lesions, and at the periphery of the nodular granulomas. Pituitary adrenocorticotropic hormone (ACTH) was administered to two patients with chronic beryllium granulomatosis, because this hormone as well as cortisone produces alterations in cellular and fibrous tissue reactions. A striking improvement occurred in both, as evidenced by the clinical response and improvement in x-ray and respiratory function studies. A third patient, similarly treated by others, also improved. Improvement was demonstrated in one patient with silicosis after administration of adrenocorticotropic hormone. The period of observation is too short to permit conclusions as to how long the improvement will persist after cessation of therapy. The appearance of the chest x-rays was unaltered by treatment. Since there has been no adequate treatment for silicosis, further investigation of the effect of adrenocorticotropic hormone seems indicated.

American Journal of Psychiatry, New York

107:561-640 (Feb.) 1951. **Partial Index**

Displacement and Migration: Study in Social Psychiatry. L. Tyhurst.—p. 561.
Uses of Thematic Apperception Test. H. A. Murray.—p. 577.
Predictive Value of Brief Psychiatric Interview. C. L. Wittson and W. A. Hunt.—p. 582.
Narcoanalysis and Truth. F. C. Redlich, L. J. Ravitz Jr. and G. H. Dession.—p. 586.
*The Crime of Menticide. J. A. M. Meerloo.—p. 594.
Volunteer Worker and Psychiatric Hospital. A. H. Fechner and J. H. Parke.—p. 602.
Experimentally Produced Psychoses. P. H. Hoch.—p. 607.
Study of Dreams in Schizophrenia and Allied States. D. Noble.—p. 612.
Ego Development and Psychoanalytic Technique. R. M. Loewenstein.—p. 617.
Establishment and Function of Industrial Mental Hygiene Service. O. B. McAtee.—p. 623.

The Crime of Menticide.—The following questions have recently been raised: Is it possible through modern methods to change man's mind in behalf of certain ideological systems, to steal his spiritual freedom, or to compel him to cooperate with tyrannical political systems? Many psychiatric and psychoanalytic problems are touched on by these questions, such as the mishandling or criminal use of transference, mass hypnosis, the dangerous, intelligent madman, the technique of changing personalities (lobotomy, narcohypnosis, and truth serum), artificially provoked regressions with narcotics, and mass intoxication through terror and panic. Political evils force psychiatrists to become more aware of what they are doing, because their activities might be taken over in the service of devious political aims. An organized system of psychological intervention and judicial perversion, in which a powerful tyrant synthetically injects his own thoughts and words into the minds and mouths of the victims he plans to destroy by mock trial, may well be called menticide. The author cites examples of menticide, discusses the techniques it employs, and indicates ways of protection against it.

American Journal of Public Health, New York

41:263-373 (March) 1951. **Partial Index**

Epidemiological Approaches to Heart Disease: The Framingham Study. T. R. Dawber, G. F. Meadors and F. E. Moore Jr.—p. 279.
Effective Use of Penicillin to Reduce Contamination in Sputum Concentrates to Be Examined for Tubercle Bacilli. J. N. Abbott.—p. 287.
Interpretation of Results Obtained from Cultivation of Sputum Samples for M. Tuberculosis. E. M. Medlar, S. Bernstein and F. C. Reeves. —p. 292.
Use of Child Health Conferences for Training of House Officers and Medical Students: Survey of 238 Health Departments in 33 States. P. Harper and S. M. Wishik.—p. 312.
Joint Housing of Hospitals, Health Departments, and Laboratories: Survey of Joint Housing. M. Terris.—p. 319.
Id.: Hospital Administrator's Viewpoint. E. D. Barnett.—p. 326.
Id.: *Health Officer's Viewpoint.* W. A. Harris.—p. 331.

Am. Practitioner & Digest of Treatment, Philadelphia

2:113-216 (Feb.) 1951

Metabolic Bone Diseases in Practice: Osteoporosis, Paget's Disease, von Recklinghausen's Disease, and Albright's Syndrome. G. S. Gordan. —p. 113.
Neurocirculatory Asthenia: Diagnosis and Treatment. N. E. Reich. —p. 120.
Observations on Etiology and Treatment of Auricular Flutter: Analysis of 50 Cases. E. Goldberger and A. Baer.—p. 124.
Mechanism of Systolic Murmur in Anemia. E. Shapiro.—p. 128.
Orthopedic Management of Chronic Arthritis: Knee and Foot. J. G. Kuhns.—p. 134.
General Practitioners and Psychiatry. N. Brunori.—p. 138.
*Diagnosis and Treatment of Gout: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) in Acute Attack. F. Kauffmann.—p. 146.
Medical Plans for Civil Defense and Disaster with Particular Attention to Local Planning With or Without National Plans. W. L. Wilson. —p. 151.
Headache Clinics: II. Migraine Headache. L. S. Blumenthal and M. Fuchs.—p. 163.
Comparative Study of Sodium-Free Salt Substitutes. A. B. Rimmerman and A. Halpern.—p. 168.
Importance of Cardiovascular Diseases in Modern Medicine. E. Baráth. —p. 172.

Diagnosis and Treatment of Gout.—The diagnosis of the early stage of gout is simple; recurrent attacks of acute joint pain with completely asymptomatic intervals, an increase in serum urate, and, eventually, the observation of urate tophi will lead the way to the correct diagnosis, which may be established by the therapeutic test with colchicine. This drug will in most of the cases relieve an acute attack of gouty arthritis, whereas other arthritides are not affected by it. The differential diagnosis of the late stage of gout is sometimes difficult but may be made with the aid of the history of sudden onset of acute attacks, elevated uric acid serum level and the observation of tophi. In the treatment of the acute episode of gout, one tablet (0.5 mg.) of colchicine should be given every hour, or two tablets every two hours, as soon as possible after the beginning of acute symptoms; the drug should be discontinued at the onset of nausea, vomiting, or diarrhea, which usually appear after 10 to 15 doses have been taken. A second course of colchicine after an interval of 48 hours may be required if the first one was not started promptly after the beginning of symptoms. Severe recurrent attacks of acute gouty arthritis may not be relieved, even by repeated massive doses of colchicine, and pituitary adrenocorticotropic hormone (ACTH) offers much promise in cases of this type. Dramatic relief, with subsidence of the acute symptoms within 12 hours, was obtained with a single injection of 80 mg. of pituitary adrenocorticotropic hormone in two men aged 62 and 56 with acute gouty arthritis not relieved by colchicine. A third patient, with a history of long-standing gout, showed little response to a daily dose of 80 mg. of pituitary adrenocorticotropic hormone for four days, but was later relieved by colchicine. In the light of Selye's adaptation theory, any decrease in the adrenocortical activity in a predisposed, gouty patient may precipitate an acute attack. By prompt stimulation of the adrenal cortices with following rebound phenomenon of decreased hormonal activity, such an attack may be elicited after various nonspecific stresses, after cessation of pituitary adrenocorticotropic hormone therapy in the acute episode, or in the interval or chronic stage of the disease. On the other hand, an acute gouty episode can be promptly terminated by pituitary adrenocorticotropic hormone injection in most of the cases, probably because of an increase in adrenocortical secretion in persons with such a deficiency. In this way the disturbing dual action of pituitary adrenocorticotropic hormone in eliciting and terminating an acute attack of gout can be explained.

Annals of Surgery, Philadelphia

133:145-288 (Feb.) 1951. **Partial Index**

*Effects on Human Subjects of Intravenous Fat Emulsions of High Caloric Potency. *B. G. P. Shafiroff* and J. H. Mulholland.—p. 145.
*Revascularization of Heart by Vein Graft from Aorta to Coronary Sinus. F. F. McAllister, D. Leighninger and C. S. Beck.—p. 153.
Carcinoma of Rectum: Study of Factors Influencing Survival Following Combined Abdominoperineal Resection of Rectum. E. J. Dunning, T. E. Jones and J. B. Hazard.—p. 166.
Nonoperative Treatment of Retained Postoperative Common Duct Stones. J. H. Strickler, J. J. Muller, C. O. Rice and I. D. Baronofsky.—p. 174.
Diagnostic Criteria in Strangulating Obstruction of Small Intestine. F. Z. Reinus.—p. 184.
Effect of Hormonal Imbalance on Advanced Carcinoma of Male Breast. J. B. Herrmann.—p. 191.
Observations on Growth of Aortic Anastomoses in Puppies. E. S. Hurwitt and S. A. Brahms.—p. 200.
Therapeutic Effect of Aureomycin in Experimental Peritonitis in Dog: I. Oral Therapy. F. B. Schweinburg, A. M. Rutenburg, S. Milrod and others.—p. 208.
Vagus Section in Treatment of Gastrojejunal Ulcer. G. Knox and J. P. West.—p. 216.
Cystogastrostomy: Treatment of Pancreatic Pseudocysts. F. H. Brandenburg, S. Maddock and R. J. Schweitzer.—p. 219.
*Death *Following Stellate Ganglion Block.* I. M. Pallin and E. V. Deutsch.—p. 226.
Reflux of Intestinal Chyle in Lymphatics of Leg. Servelle and Deysson. —p. 234.
Postoperative Traumatic Anal Incontinence: Technic of Repair. S. Leider and H. Peskin.—p. 240.
Prolapse of Rectum: Experiences with the Orr Operation in Two Cases. A. H. Levy and V. S. Johnson.—p. 244.
Suppurative Strumitis Caused by Salmonella Typhosa: Report of Case Cured by Surgery 24 Years After Acute Enteric Fever. A. G. *Brenzier Jr.*—p. 247.
Functioning Struma Ovarii: Report of Case. J. F. Fox and K. W. Clement.—p. 253.
Perineal Hernia: Report of Case with Many Associated Muscular and Fascial Defects. A. R. Koontz.—p. 255.
Liposarcoma of Extremity Associated with Multiple Subcutaneous Lipomas: Report of Two Cases Treated by Amputation. G. B. Starkloff, J. A. Saxton Jr. and R. E. Johnson.—p. 261.
Method of Hemipelvectomy with Abdominal Exploration and Temporary Ligation of Common Iliac Artery. J. H. Lazzari and F. J. Rack. —p. 267.
Contrast Visualization of Pulmonary Vessels as Aid in Early Diagnosis of Pulmonary Neoplasms: Case Report. R. A. Nabatoff.—p. 270.
Spontaneous Perforation of Common Bile Duct. D. E. Hart.—p. 280.
Squamous Cell Carcinoma of Rectum. J. P. O'Brien and D. J. Meehan. —p. 283.

Intravenous Administration of Fat Emulsions.—The development of a combined fat emulsion derived from the homogenization of coconut oil, gelatin, protein hydrolysate (amigen®), and dextrose solutions provided a new means of parenteral surgical nutrition. The practicability and the benefits of the fat emulsion were discussed in an earlier series of papers. In the present investigation the 10%, the 15%, and the 20% combined fat emulsions were infused intravenously in conjunction with 10% dextrose solution, so that the maximum caloric potential consistent with safe clinical therapy might be attained. The effect of single intravenous infusions of the combined fat emulsion in conjunction with dextrose solution was studied in a series of 19 subjects grouped according to the concentration of fat in the emulsion. The reaction rate averaged 16% for the three groups, with most of the reactions occurring in groups B and C, who received the 15 or 20% combined fat emulsion. Attention was given to systemic reactions, hematologic changes, urinary chemistry, and oxygen consumption. A second series of eight patients were studied from the standpoint of the effect of prolonged injections of the emulsion involving a minimal five day period of therapy. The incidence of reactions in this series was 19%. Clinical studies and pathological examinations showed that the emulsion was well tolerated and could be repeatedly infused for nutritional purposes.

Revascularization of Heart.—McAllister and associates present a progress report on the revascularization of the heart. The beneficial effect of arterialization of the coronary sinus had been demonstrated, but since it is impossible to employ the common carotid artery for the shunt in the human being and since there is no other satisfactory artery in the vicinity of the heart, they inserted a free vein graft between the side of the thoracic aorta and the side of the coronary sinus. They found that the arterial inflow must be restricted by an aortic stoma measuring no more than 3.5 to 4 mm. in diameter. The coronary sinus should not be completely ligated as a preliminary, simultaneous, or subsequent secondary procedure. If it is, too much blood is introduced into the venous tree, so that the pressure approaches aortic levels and blood flow becomes greatly reduced. The excessive pressure causes cardiac failure or myocardial hemorrhage and scarring, and the reduced blood flow results in thrombosis of the grafts. If a vein graft is inserted between the aorta and the coronary sinus and if the sinus is left open so as to create an aortic right auricular fistula, the operation is well tolerated. Forty-seven consecutive patients have been operated on without mortality, and the grafts have remained open in 65% of the cases. This procedure, of itself, furnishes some protection to the heart against occlusion of a major coronary artery. If, at a second stage, the coronary sinus is partially occluded to 3 mm. diameter, there is neither further mortality nor thrombosis of the grafts. Moreover, this two stage procedure has protected 12 of 13 dog hearts against occlusion at the origin of the anterior descending branch of the left coronary artery.

Death Following Stellate Ganglion Block.—A 55 year old woman was given a series of six right stellate ganglion blocks on account of postoperative lymphedema of the arm. From 6 to 12 cc. of 1.5% piperocaine (metycaine®) hydrochloride was used for each block, for which the posterior approach was used. During the second block the patient complained of weakness and dizziness after injection, but when she was put in supine position she felt much better. After five blocks had been done the pain in the arm diminished. When the needle was inserted for the sixth block the patient cried out. Aspiration revealed neither blood nor spinal fluid. After 4 cc. of 1.5% piperocaine was injected, the patient again cried out. On withdrawal of the needle she felt dizzy. She was placed in a semireclining position, and her eyeballs rolled upward and to the right, and respirations and pulse could not be detected. As the result of various measures of resuscitation, the patient was kept alive for 39 hours but then died. The authors cite similar cases from the literature and attempt to relate the sudden cardiorespiratory cessation to vagal arrest of the heart and central respiratory center. They emphasize that the performance of stellate ganglion block requires a thorough understanding of the anatomy and the neurophysiology involved. It should not be considered as a simple procedure to be performed by the untrained.

Journal Clin. Endocrinology, Springfield, Ill.

11:1-118 (Jan.) 1951

*Treatment of Congenital Adrenal Hyperplasia with Cortisone. L. Wilkins, R. A. Lewis, R. Klein and others.—p. 1.
Studies of Urinary Corticosteroid by Method Permitting Analysis of Steroids Poorly Soluble in Water: II. Insufficient Adrenal Function. C. W. Lloyd and J. Lobotsky.—p. 26.
Effect of Adrenocorticotropic Hormone and Cortisone on Serum Hexosamine Level in Acute Disseminated Lupus Erythematosus. N. F. Boas and L. J. Soffer.—p. 39.
Effect of Adrenalin on Adrenal Cortical Function. E. L. Bliss, S. Rubin and T. Gilbert.—p. 46.
Neutral Steroids of Human Urine: Quantitative Studies in Various Clinical Conditions. S. L. Tompsett.—p. 61.
Studies on Hormonal Control of Serum Lipid Partition in Man. D. Adlersberg, L. E. Schaefer and S. R. Drachman.—p. 67.
Excretion of Acid Phosphatase as Measure of Prostatic Development During Pubescence. L. C. Clark Jr., E. Beck and H. Thompson.—p. 84.
Correlation Between Serum Protein-Bound Iodine and Radioiodine Conversion Ratio in Various Thyroid States. G. E. Sheline, M. C. Moore, A. Kappas and D. E. Clark.—p. 91.
Action of Estrogens on Release of Luteinizing Hormone in Menopausal Women. J. W. Funnell, C. Keaty and A. A. Hellbaum.—p. 98.
Glycogen-Estrogen Relationship in Vaginal Tract. W. B. Ayre.—p. 103.

Cortisone for Adrenal Hyperplasia.—Congenital adrenal hyperplasia causes pseudohermaphrodism in females and macrogenitosomia precox in males. After unsuccessful attempts to suppress the secretion of androgen in patients with congenital adrenal hyperplasia by the administration of steroids, which have a chemical structure similar to that of androgens but possess relatively little androgenic activity, Wilkins and co-workers began to treat these patients with cortisone. This paper presents the results of cortisone administration in six women and two men with congenital adrenal hyperplasia and includes the observations of other investigators in two additional cases. In these 10 cases initial doses of 50 to 100 mg. of cortisone daily in older children or 25 to 50 mg. daily in young infants caused rapid decrease of the urinary 17-ketosteroids. Later, the suppression of 17-ketosteroid excretion was maintained by 25 mg. of cortisone daily, or 50 mg. every other day in older children; doses varying from 10 to 25 mg. per day sufficed in the infants. The effects lasted as long as treatment was continued, the longest period being five to six months. No changes in carbohydrate metabolism were observed. There was an increase in urinary nitrogen excretion suggesting decrease of protein anabolism. In patients with congenital adrenal hyperplasia and defective electrolyte regulation, cortisone probably has some sodium-retaining activity. It is not now possible to decide whether desoxycorticosterone in addition to cortisone is required to maintain electrolyte equilibrium in some of these patients. In most cases the period of treatment has been too short to note definite decrease of virilization. There has been some decrease of acne and seborrhea in a number of cases. In two patients treated for five months, development of the breasts and estrogenic changes of the vaginal smear occurred, and one girl has had four regular menstrual periods. In one patient hypertension disappeared under treatment. In the patient showing Addisonian-like pigmentation, there was considerable fading. Treatment with cortisone in small doses offers the possibility of preventing or suppressing the progressive virilization which occurs with congenital adrenal hyperplasia and may permit the normal development of feminine characteristics in female pseudohermaphrodites.

Journal Lab. and Clinical Medicine, St. Louis

37:165-330 (Feb.) 1951

Studies of Hemagglutinins in Hereditary Spherocytosis and in Acquired Hemolytic Anemia: Their Relationship to Hypersplenic Mechanism. C. S. Wright, M. C. Dodd, B. A. Bouroncle and others.—p. 165.
*Anemia of Cancer Patients and Its Relation to Metastases to Bone Marrow. Shu Chu Shen and F. Homburger.—p. 182.
Blood Ergothioneine Levels in Disease. R. S. Fraser.—p. 199.
Effect of Various Protein Hydrolysates and Amino Acids on Uremic Rat. J. H. Lindberg and S. Freeman.—p. 207.
Fat Emulsion for Intravenous Nutrition in Rabbits. H. C. Meng.—p. 222.
Production of Insulin Sensitivity with Adrenocorticolytic Drug DDD (2,2-bis [Parachlorophenyl]-1,1-Dichloroethane). J. Nichols and L. I. Gardner.—p. 229.
Studies of Radiogallium as Diagnostic Agent in Bone Tumors. W. C. Mulry and H. C. Dudley.—p. 239.
Cryoglobulinemia: III. Influence of Cryoglobulin on Suspension Stability and Sedimentation Rate of Erythrocytes. E. H. Luckey, E. Russ and D. P. Barr.—p. 253.
Electrophoretic Characterization of Serum from Rheumatoid Arthritis Patients. A. F. Reid, R. M. Pike, S. E. Sulkin and H. C. Coggeshall. —p. 264.
Treatment of Dicumarol-Induced Hypoprothrombinemia in Man with Emulsified Vitamin K_1 Administered Intravenously. D. M. Watkin, T. B. Van Itallie, W. B. Logan and others.—p. 269.
Effect of Benemid on Plasma Penicillin Levels. J. F. Waldo and J. T. Tyson.—p. 272.
Clinical and Biologic Significance of Penicillin-Resistant Staphylococci, Including Observations with Streptomycin, Aureomycin, Chloramphenicol, and Terramycin. W. W. Spink.—p. 278.
Some Factors Concerned with Two-Stage Plasma Prothrombin Assay. C. L. Johnston Jr. and J. H. Ferguson.—p. 294.
Enzyme Studies on Human Blood: VIII. Effect of Fibrinogen Concentration on Thrombin Clotting Time. G. Y. Shinowara and L. Rosenfeld. —p. 303.
Id.: IX. Fibrinogen Content of Stored Plasma. L. Rosenfeld and G. Y. Shinowara.—p. 311.

Anemia in Cancer and Metastases to Bone Marrow.—It is usually assumed that anemia in cancer patients, excluding that due to blood loss or to hemolysis, is due to bone marrow invasion. However, this explanation is not in keeping with the observation that anemia is frequently encountered in cancer patients who have no skeletal changes and inversely anemia may be absent in the presence of extensive bone metastases. Shen and Homburger review morphologic studies of the peripheral blood and bone marrow made in 193 patients with advanced cancer. Of the 50 patients who had evidence of bone metastases 24 were anemic and 26 were not. In 16 anemic patients (eight with and eight without metastases to bone) cobaltous chloride, 60 to 240 mg. daily, was used in testing the bone marrows of these patients for response to such a hematopoietic stimulus. In all six patients with osseous metastases who received an adequate trial of the drug, the administration of cobalt was followed by reticulocyte responses. Of the four patients without metastases to bone who could tolerate cobalt for an adequate period, three showed definite reticulocyte responses followed by increase in red cells, hemoglobin, and hematocrit. The other patient showed no hematologic response. Cobalt therapy in cancer patients with anemia may increase erythropoiesis regardless of metastasis to bone, but it fails to produce subjective improvement and may cause symptoms referable to the gastrointestinal tract or suggestive of angina pectoris. It is concluded that anemia associated with cancer is not usually due to bone marrow replacement by neoplastic tissue.

Journal of Nervous and Mental Disease, New York

113:95-188 (Feb.) 1951

- Excessive Hunger as Symptom of Cerebral Origin. W. R. Kirschbaum. —p. 95.
- Tuberculosis in Mental Hospitals. J. D. Wassersug and W. F. McLaughlin.—p. 115.
- Electrocardiogram in Psychiatric Patients (Including Report of Electrocardiogram Following Frontal Lobotomy). J. E. Oltman and S. Friedman.—p. 127.
- Relationship of Vegetative Nervous System to Uremia. L. Hess.—p. 136.
- Pseudo-Diphtheritic Polyneuritis. J. A. Di Fiore.—p. 144.
- Mood, Anger and Somatic Dysfunction. I. D. Harris.—p. 152.
- Comparison of Insulin Coma Therapy and Electronarcosis in Schizophrenia. S. Reznick and V. Arnett.—p. 159.
- Tuberculous Otitis and Meningitis. D. I. Abruse and E. Levenson. —p. 165.
- Epilepsy and Arteriosclerosis. A. Gordon.—p. 170.

Journal of Nutrition, Philadelphia

43:193-344 (Feb.) 1951. **Partial Index**

- Histologic Bioassay of 3-Methyl-*l*-Ascorbic Acid. H. M. Goldman and B. S. Gould.—p. 123.
- Duodenal Ulcers, Liver Damage, Anemia and Edema of Chronic Choline Deficiency in Dogs. A. E. Schaefer, D. H. Copeland and W. D. Salmon.—p. 201.
- Evaluation by Dog Growth of Egg Yolk Protein and Six Other Partially Purified Proteins, Some After Heat Treatment. D. M. Mabee and A. F. Morgan.—p. 261.
- Effect of Pyridoxine Deficiency on Reproduction in Rat. M. M. Nelson and H. M. Evans.—p. 281.
- Experimental Dental Caries in Rats. F. J. McClure.—p. 303.
- Folic Acid and Vitamin B_{12} Content of Milk of Various Species. R. A. Collins, A. E. Harper, M. Schreiber and C. A. Elvehjem.—p. 313.
- Sequelae to Administration of Vitamin B_{12} to Humans. B. F. Chow. —p. 323.

Journal of Pediatrics, St. Louis

38:147-274 (Feb.) 1951

- Occurrence of Lysozyme in Cerebrospinal Fluid and Serum of Infants and Children. E. F. Rabe and E. C. Curnen.—p. 147.
- Feeding of Premature Infants: Value of High Caloric Diets in Reducing Length of Hospital Stay. J. B. Hardy and E. O. Goldstein.—p. 154.
- *Treatment of Hyperthyroidism with Radioactive Iodine. G. B. Forbes and A. M. Perley.—p. 158.
- Some Observations on the Use of Adrenocorticotropic Hormone in Atopic Dermatitis in Infancy. A. DiGeorge and W. E. Nelson.—p. 164.
- Study of Prophylactic Value of Chloroquine in Children. H. A. Poindexter.—p. 169.
- *Auricular Septal Defects in Children. J. D. Keith and C. C. Forsyth. —p. 172.
- Traumatic Periostitis in Young Children. G. H. Barmeyer, L. R. Alderson and W. B. Cox.—p. 184.
- Major Hereditary Ectodermal Dysplasia. R. J. Ellingson.—p. 191.
- Situs Inversus: Report of Three Cases and Review of Literature. N. Tanner-Cain and E. P. Crump.—p. 199.
- Current Adoption Practices. C. S. Amatruda and J. V. Baldwin.—p. 208.
- Experiences with Elective Rooming-in Program. M. M. Pennoyer. —p. 213.
- The Astoria Plan: A Decade of Progress. H. Jacobziner.—p. 221.

Hyperthyroidism and Radioactive Iodine.—A Negro girl aged 11 with diffuse toxic goiter and rheumatic heart disease was treated with radioactive iodine. This method of treatment seemed justified since the patient had failed to respond in a satisfactory manner to strong iodine (Lugol's) solution; she had failed to cooperate to the degree necessary to insure success with propylthiouracil, and the risks of surgical treatment by thyroidectomy were increased by the presence of rheumatic heart disease. On admission to the hospital, the patient's temperature was 100.2 F., pulse rate 120, respirations 24, and blood pressure 160/74. The basal metabolic rate ranged from + 45 to + 58%. After it was ascertained by means of a tracer dose of I^{131} that the thyroid would collect radioiodine in a sufficient quantity to suggest a successful radiation effect, a therapeutic dose of radioiodine, i. e., 5 mc., carrier-free, was administered by mouth in a single dose. Except for a gain in weight, there was little change in the patient's clinical course for the first four weeks. The basal metabolic rate dropped abruptly in the fifth week to + 15 and + 23%, in serial determinations, and the pulse fell to an average value of 100. During the sixth week, a decrease in restlessness, exophthalmos, and in tremor of the extremities was noted and the blood pressure fell to 135/85. Mild leukopenia and anemia without thrombopenia occurred during the second week, but the blood cell count then rose rapidly, with the red blood cell count 5,900,000 and the white blood cell count 7,400 at the time of discharge from the hospital five weeks after therapy. Three months after therapy, the patient exhibited no symptoms or signs of thyrotoxicosis other than the mild hypertension and slight exophthalmos. The blood pressure was restored to normal six months after therapy and has remained normal to date. The size of the thyroid gland decreased until it measured approximately 3 by 4 cm., and it has remained that size. Because of the reduction in the basal metabolic rate to subnormal values (lowest reading —35%), the patient was given 0.03 gm. of thyroid hormone by mouth, daily for six months. The patient's clinical course was entirely satisfactory. She returned to school and has been able to engage in normal physical activity. Menarche occurred at the age of 12 years, 2 mo. Menstruation has been regular since. Radioiodine uptake curves of the thyroid gland obtained at the time of treatment and again 21 mo. later are presented. Radioactive iodine should not be the treatment of choice in juvenile hyperthyroidism, but it may be useful in certain selected patients.

Auricular Septal Defects.—Fourteen children, 11 girls and three boys, with evidence of atrial septal defect confirmed by cardiac catheterization are reported on. Three-quarters of the patients were thin, but the other quarter was of an average physique without obesity. A review of the clinical observations in these patients suggests that there is a common pattern that will frequently permit a presumptive diagnosis on physical examination alone. The typical patient is a somewhat thin girl aged 7 whose heartbeat has increased in force and who has a systolic murmur of moderate intensity in the first to third left interspaces. The murmur is not accompanied by a thrill, but is usually associated with an accentuated second heart sound down the left border of the sternum. The electrocardiogram usually shows right axis deviation, and under the fluoroscope one sees a slight to moderately enlarged heart with increased and pulsating hilar shadows, and the pulmonary trunk is usually bulging. A close approximation of this pattern was observed in most of the author's 14 patients. Accurate diagnosis of auricular septal defects permits proper management of physical activity of the patient and choice of cardiac surgery to correct the defect. One female patient, aged 10, was operated on. Silk sutures were passed through the plane of the auricular septum. These were drawn taut and tied in an effort to close or eliminate the opening between the auricles. The patient had a satisfactory convalescence from the operation. There was moderate improvement in exercise tolerance following operation, which was sustained for six to eight months. A generalized decrease in the size of the right auricle was demonstrated on roentgenologic examination. The optimum surgical correction of an auricular septal defect will be difficult to achieve by present techniques, but results obtained in the case reported on suggest that the problem is not insuperable. Untreated patients with auricular septal defects survive approximately two-thirds of the normal life span.

Kansas Medical Society Journal, Topeka

52:45-92 (Feb.) 1951

- Problem of Success and Failure in School Age Child. R. A. Moon. —p. 45.
- Rapid Rehabilitation of Disabilities of Knee. D. L. Rose and L. G. Warner.—p. 49.
- Use of Laboratory in Diagnosis of Liver Disease. T. J. Rankin.—p. 53.
- Primary Tumors of Bladder: Survey of 275 Cases. J. W. Warren Jr. —p. 59.

FOREIGN

Annales Paediatrici, Basel

176:73-136 (Feb.) 1951. **Partial Index**

*Thirty-Six Years of Papaverine Therapy for Spasm of Pylorus in Newborn and Young Nursing Infants: Old and New Indications. E. Mayerhofer.—p. 73.
Toxic Gastroenteritis. E. Nassau.—p. 82.
Diencephalon Syndrome with Hypertonia in Encephalitis. L. Barta.—p. 93.
Contribution to Clinical Picture of Hemolytic Anemia. B. Lindquist and S. Widell.—p. 98.

Papaverine Treatment for Spasm of Pylorus in Infants.—Several hundred infants with spasm of the pylorus were treated with 0.01 gm. of papaverine hydrochloride daily by mouth during the period 1913-1949. Recovery occurred only in cases in which diagnosis was made early. Only a partial effect or no effect whatsoever may be obtained with this method of treatment in the presence of a hypertrophic tumor in the pyloric sphincter. This applies even more to cases of secondary stenosis of the pylorus in which the largest doses of papaverine hydrochloride proved ineffective and in which surgical treatment is indispensable. Spasm of the pylorus frequently occurs in the absence of hypertrophy of smooth muscle in the allergic syndrome of newborn infants. Early treatment of this allergic spasm provides effective prophylaxis against the later occurrence of hypertrophic stenosis of the pylorus, since in the absence of treatment the latter may develop from the primary functional spasm by increased muscular activity resulting in a tumor of the muscle with secondary stenosis. In addition, treatment of an allergic spasm of the pylorus with papaverine hydrochloride may effectively relieve serious disturbances of breast feeding and early nutritional disturbances of newborn babies. Combined administration of a daily dose of 0.01 gm. of papaverine hydrochloride with 0.05 gm. of aminopyrine in powder form by mouth is recommended before breast or bottle feeding. This dose may be repeated three to four times within 24 hours according to the age of the infant and the severity of the condition. Suppositories, drip enemas or injections of pure papaverine hydrochloride may be given if oral administration is impossible because of severe vomiting. In cases of simultaneous abdominal pain and diarrhea in newborn infants, combined treatment with codeine and aminopyrine is recommended, but papaverine hydrochloride remains the basic drug for antispasmodic therapy. The author stresses the importance of the neuropathic factor in pyloric stenosis of nursing infants.

Annals of Rheumatic Diseases, London

9:281-448 (Dec.) 1950

Gout: Unusual Case with Softening and Subluxation of First Cervical Vertebra and Splenomegaly: Result of ACTH Administration and Eventual Post-Mortem Findings. G. D. Kersley, L. Mandel and M. R. Jeffrey.—p. 282.
Methods of Treatment of Rheumatoid Arthritis and Ankylosing Spondylitis Depending on Stimulation of Pituitary-Adrenal Function (Other than Treatment with Cortisone and ACTH). F. Coste and F. Lacronique.—p. 305.
Study of Preparation of ACTH. F. Coste and F. Delbarre.—p. 317.
*Senile Ankylosing Hyperostosis of Spine. J. Forestier and J. Rotes-Querol.—p. 321.
Theory of Pathogenesis of Rheumatoid Arthritis. A. D. Wallis.—p. 331.
"Chronic Rheumatic" and His Pains: Psychosomatic Aspects of Chronic Non-Articular Rheumatism. P. Ellman and D. Shaw.—p. 341.
Oral and Intravenous Iron Therapy in Anaemia of Rheumatoid Arthritis. D. N. Ross.—p. 358.
Synovial Membrane: Some Observations in Normal and Arthritic Human Joints. K. Maunsell, F. Wrigley, T. C. Highton and L. B. Holt.—p. 363.
Rheumatoid Spondylitis: Paediatric Problem. M. Lucchesi and O. Lucchesi.—p. 372.
Agglutinating Factor for Sensitized Sheep Erythrocytes in Serum and Joint Fluid from Rheumatoid Arthritis Patients. N. Svartz and K. Schlossmann.—p. 377.

Senile Ankylosing Hyperostosis of Spine.—The clinical and radiological study of nine cases, combined with necropsy findings in two specimens, enabled Forestier and Rotes-Querol to set out some of the clinical, pathologic and radiological features of a specific condition among the ankylosing diseases of the spine. The condition is to be differentiated from ankylosing spondylitis, and the authors propose for it the term "senile ankylosing hyperostosis of the spine." This name emphasizes: (*a*) the hyperostosis, a most striking pathologic element, and (*b*) two constant clinical features: spinal rigidity and advanced age. It is not a rare disease, but most often either goes unnoticed or is mistaken for some other form of vertebral ossification. Because of the mild nature of the symptoms no active treatment is required. Roentgenologic examination reveals bony outgrowths or hyperostoses that arise from the anterolateral aspect of the vertebral bodies and grow upward in a "candle flame" formation over the lumbar disk spaces; at the level of the dorsal disks they are often thickened. They have a bony structure with a dense cortex similar to that of the head of the femur, the cancellous bone being in continuity with that of the vertebral bodies. They may coexist with osteophytes, but have entirely different anatomic features.

British Journal of Cancer, London

4:347-436 (Dec.) 1950. **Partial Index**

*Further Studies on Prognosis of Breast Carcinoma. H. J. G. Bloom.—p. 347.
Principles of Treatment by Radiotherapy in Breast Carcinoma. R. McWhirter.—p. 368.
Effect of Freezing and Freeze-Drying on Transplantation of Sarcoma 37. P. Warner and J. Gostling.—p. 380.
Carcinogenic Activity of Tannic Acid: Liver Tumours Induced in Rats by Prolonged Subcutaneous Administration of Tannic Acid Solutions. B. Korpássy and M. Mosonyi.—p. 411.
Experiments on Chemotherapy of Cancer: Screening Tests with Six Groups of Organic Compounds on Implanted Mouse Tumours. D. Hamer, I. W. Hughes, M. Stacey and others.—p. 421.

Prognosis of Breast Carcinoma.—In a recent investigation Bloom had stressed the significance of the histologic architecture of the tumor in cases of mammary carcinoma. A classification based on the microscopic appearance of the tumor (grade) combined with a knowledge of its extent (stage) was found to provide a more reliable guide to prognosis than could be achieved by either grading or staging alone. In the present report Bloom is concerned with some further aspects of prognosis of breast cancer. No significant differences in outcome were revealed in the various age groups, the younger women faring no worse than the older ones. The incidence of tumors of low and also of high malignancy in the various decades was practically the same. It is useless to try to assess the effect of the delay in seeking treatment without reference to the histologic type of growth involved. For example, delay is of little importance for patients with highly malignant (grade 3) tumors; it does not seem to matter whether such patients are treated early (less than six weeks) or late (six to 12 months), the prognosis is equally bad. On the other hand, the time factor appears to influence the outlook of women with growths whose behavior is essentially more benign (grade 1). In this type of case a loss of more than six months means a substantial fall in the survival rate. The site of the tumor in the breast was found to exert no striking effect on prognosis. It is possible, however, that the outlook for patients with growths of low grade malignancy may be influenced slightly by this feature. The size of the primary growth influences prognosis, particularly in the intermediate grade of tumors, but size was evidently of no prognostic importance in either low or high grade malignancy. Pregnancy following the adequate control of previous mammary carcinoma does not appear to influence the outlook adversely.

British Journal of Venereal Diseases, London

26:157-212 (Dec.) 1950. **Partial Index**

Complement-Fixation Technique: III. Wassermann Reaction. I. N. O. Price.—p. 172.
Treatment of Syphilis with Penicillin: Review of 123 Cases Treated in H. M. Forces. R. Lees and L. Watt.—p. 174.
Virus and Venereal Disease. S. P. Bedson.—p. 177.
Therapeutic Paradox from Penicillin Therapy in Laryngeal Syphilis: Report of Case. A. I. Suchett-Kaye.—p. 183.
Arsenical Encephalopathy Occurring in Treatment of Lues During Pregnancy. R. Lees and J. R. G. Buchanan.—p. 185.

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:317-338 (Feb. 17) 1951

Some Typical Data from Cases of Pink Diseases. C. S. Hicks.—p. 317.
*Sulphonamides and Acute Tonsillitis: Controlled Experiment in Royal Air Force Community. T. C. MacDonald and I. H. Watson.—p. 323.
*"Sore Throat" in General Practice. J. B. Landsman, N. R. Grist, R. Black and others.—p. 326.
Lead-Poisoning in Children: Report of Five Cases, with Special Reference to Pica. N. F. E. Burrows, J. Rendle-Short and D. Hanna.—p. 329.
Keratoderma Palmaris et Plantaris Congenitalis. D. Macaulay.—p. 334.
False Diagnosis of Patency of Fallopian Tubes. M. M. White.—p. 336.

Sulfonamides and Tonsillitis.—A study was made of the effectiveness of sulfonamides in the treatment of 82 cases of acute tonsillitis. The cases were divided equally into treated and control groups. Fifty tablets (25 gm.) of sulfatriad (37.5% sulfadiazine, 37.5% sulfathiazole and 25% sulfamerazine) were given to each patient in the treated group; each patient in the control group received 50 lactose tablets. All the patients were treated by bed rest and given copious fluids. Analysis of clinical records revealed no difference between control and treated cases in regard to the speed of recovery from various symptoms (temperature, edema, exudate, adenitis and pain) regardless of the presence or absence of beta hemolytic streptococci. However, judged by their over-all clinical appearance, the treated patients seemed to recover more rapidly. The administration of sulfatriad had no effect on the survival of beta hemolytic streptococci in the cases examined. The authors conclude that the findings do not justify the routine use of a potentially dangerous drug such as sulfatriad in the treatment of acute tonsillitis. They feel that other methods can be found to improve the well-being of the patient if the difference of recovery is only a matter of hours.

"Sore Throat" in General Practice.—Landsman and his associates are concerned with the epidemiology and best method of treatment for "sore throat." Their study is based on 100 patients who complained of sore throat as the leading symptom. Throat cultures showed a normal flora in approximately one third of the patients; a heavy growth of beta hemolytic streptococci was evidenced in a similar proportion; a few colonies were seen in 22%, and a moderate growth of beta hemolytic streptococcus in 14% of the patients. Therefore, the authors state that less than half the cases (46%) can be regarded as streptococcal in origin. This observation is important since it is a common misapprehension that acute tonsillitis almost always implies a streptococcal origin. About one fourth of the streptococcal cases were not exudative. Twenty-six patients were given sulfanilamide (0.5 gm.); 26 were given 0.5 gm. of sulfatriad (37.5% sulfadiazine, 37.5% sulfathiazole and 25% sulfamerazine), and 43 were given lactose tablets. The results of the therapeutic trial did not support the thesis that sulfonamides exert a beneficial effect in the treatment of acute tonsillitis. Neither of the sulfonamide tablets was appreciably superior to the lactose tablet, which presumably was therapeutically inert. The average duration of fever and pain in those patients treated with lactose was exceedingly short, namely, 1.07 and 1.95 days respectively. The authors conclude that in the treatment of acute tonsillitis it is unnecessary as well as expensive to use drugs, such as the sulfonamides, that have definite and known dangers.

Chinese Medical Journal, Shanghai

68:327-402 (Nov.-Dec.) 1950. **Partial Index**

Pneumoperitoneum Combined with Streptomycin in Treatment of Pulmonary Tuberculosis: Preliminary Report of 40 Cases. Tung-Nien Sun. —p. 327.
Roentgenologic Examinations for Pulmonary Tuberculosis in Pregnancy: Incidence in 1,000 Consecutive Chinese Patients. Liu Chi-Hsiong. —p. 341.
*Pregnancy Test with Male Toad in Shanghai. S. P. Tien, M. P. Chen and Y. Hua.—p. 346.
Acute Hemolytic Anemia with Atypical Isohemagglutinins and Autohemagglutinins. Y. S. Chen, P. C. Hsueh and C. L. Chiu.—p. 357.
Wandering Spleen with Torsion of Pedicle. H. C. Lan, C. W. Yao and Y. L. Kwang.—p. 365.

Pregnancy Test with Male Toad.—Tien and co-workers began in March 1949 to use male toads for pregnancy tests. The toads were captured in the fields and vegetable gardens in the region of Shanghai and might be classified as Bufo bufo asiaticus Steindachner. The test was made with 5 cc. of untreated morning urine. A total of 1,060 pregnancy tests was made. The accuracy was 97.8% in 333 tests on 306 healthy pregnant women. The accuracy rate was only 89.73% in 877 tests on women with various types of pathologic conditions associated with pregnancy, such as abortion, ectopic pregnancy, hydatidiform mole and choriocarcinoma. Detachment of the placenta from its site of implantation in most cases of tubal abortion and rupture, and the degeneration of placenta tissue in cases of old ectopic gestation, and technical errors and insensitivity of the test animals explained some of the erroneous results. No false positive test was found among 248 tests made in various gynecological conditions unassociated with pregnancy. Thirty international units of chorionic gonadotropin was found to be the minimal dose necessary to produce a positive reaction in the average male toad in the spring. The accuracy rate was 60.6% in 99 cases of ectopic pregnancy. The test might serve as a diagnostic aid in ectopic pregnancy when results are positive; however, a negative result could not rule out the possibility of ectopic pregnancy. The urine in five cases of choriocarcinoma did not have a higher concentration of chorionic gonadotropin than in cases of hydatidiform mole by quantitative determination. Results of the pregnancy test became negative after the evacuation of the products of conception much sooner in normal pregnancy, abortion and ectopic gestation than in cases of hydatidiform mole. In the former group, results of the test might remain positive to the third day after evacuation, while in the latter results usually remained positive until the ninth day.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

95:169-264 (Jan. 20) 1951. **Partial Index**

Rare Cutaneous Lesion (Angiokeratoma Corporis Diffusum) as Symptom of a Hitherto Unknown Disturbance in Phosphatide Metabolism (Thesaurismosis). M. Ruiter.—p. 184.
*Occupational Paralysis of Ulnar Nerve. J. G. Y. de Jong and J. G. Geerling.—p. 192.
*Significance of Price-Jones Curve in Hemolytic Disease of the Newborn. S. I. de Vries.—p. 201.

Occupational Paralysis of Ulnar Nerve.—In a radio tube factory, paralysis of the ulnar nerve developed in eight inspectors. The fact that these workers leaned both elbows against a hard table is regarded as largely responsible for this paralysis. However, other contributing factors were searched for. A thorough neurologic examination was combined with inquiry into the diet, the misuse of alcohol or tobacco and a possible hereditary predisposition to neuritis. The scalenus syndrome was searched for; the musculature was tested electrically, and the cervical vertebrae were examined by roentgenoscopy for detection of possible cervical ribs. The lungs and the lumbosacral vertebrae were also examined roentgenologically. The histories of the eight patients are given. Treatment consisted largely of galvanotherapy and administration of vitamins. This treatment effected improvement, but in some cases mild hypesthesia remained. Rubber sponge pads were placed under the elbows of the radio tube inspectors to prevent this injury to the ulnar nerve. This measure proved effective.

The Price-Jones Curve in Hemolytic Disease of the Newborn.—The hematologic disorders that develop in newborn infants as the result of Rhesus-factor antagonism in the parents may appear not only in the form of icterus gravis, congenital anemia and fetal hydrops but also in milder forms, which may not be recognized clinically. De Vries has demonstrated changes in the Price-Jones curve of the erythrocytes in newborn infants with hemolytic disease. He made studies on 60 newborn infants with hemolytic disease, belonging to six different groups of 10 infants each. The first four groups were Rh-positive infants born at term to (1) an Rh-positive mother, (2) an Rh-negative primipara, (3) an Rh-negative multipara and (4) an Rh-negative primipara or multipara. The infants of group 4 differed from those in groups 2 and 3 in that their reaction to the Coombs test was positive, whereas results were negative in groups 2 and 3. The infants in groups 5 and 6 were prematurely born Rh-positive children, those of group 5 having an Rh-positive, those of group 6 an Rh-negative mother. The author found that qualitative changes in the Price-Jones curve were of greater significance than the absoeration of the most important aspects of studies in heredity, there is an introductory chapter providing orientation, followed by chapters on Mendelian inheritance, crosses, sex-linked and lethal genes, the mapping of chromosomes and numerous other related topics. The genetics of domestic animals and cultivated plants are also discussed. Other important chapters are devoted to sex determination, the mutant gene in man, eugenics and analysis of family histories. Profusely illustrated with sketches, diagrams and photographs, including one in color on blood groups, the volume is printed in clear, well leaded type that is conducive to easy reading. It should have widespread appeal.

Symposium on the Healthy Personality: Transactions of Special Meetings of Conference on Infancy and Childhood June 8-9 and July 3-4, 1950, New York, N. Y. Edited by Milton J. E. Senn, M.D. Supplement II: Problems of Infancy and Childhood, Transactions of Fourth Conference, March, 1950. Cloth. $2.50. Pp. 298. Josiah Macy, Jr. Foundation, 565 Park Ave., New York 21, 1950.

To lay a factual background for the consideration of "healthy personality development of children and youth" and "how can we rear an emotionally healthy generation," a group of neuropsychiatrists, psychoanalysts, psychologists, pediatricians, obstetricians, anthropologists and sociologists met with members of the Fact Finding Committee of the Midcentury White House Conference and its staff. This volume is a stenographic report of the papers and discussions of these two meetings.

The first meeting concerned the discussion of a preliminary report on "Growth and Crisis" by Erik H. Erikson, a psychoanalyst with the Institute on Personality Assessment and Research of the University of California, Berkeley, Calif. He presented the criteria of a healthy personality in the eight stages of development at which he feels a person passes through a developmental crisis. His colleagues discuss his point of view very criti[illegible]ly, with the hope of making his final report, which follows [illegible] discussion, more useful to the White House Conference.

The second session considered two presentations. "Constitutional and Prenatal Factors in Infant and Child Health" by M. T. Ashley Montagu of the Department of Anthropology, Rutgers University, New Brunswick, N. J., covered the information available on the effect of the prenatal environment on the subsequent emotional development of a person. The second, "Toward a Social Psychology of Mental Health" by Marie Jahoda of the Research Center for Human Relations, New York University Graduate School of Arts and Sciences, purports "to examine what is known and what should be known about the impact of community influence on the mental health of the individual."

The interesting part of this book is the profound discussion of developmental problems by scientists of widely varying education and experience. The semantic problems of interprofessional communication are clearly presented in the effort each participant makes to understand the thinking behind the words used. This book also presents an excellent overview of the thinking not only of these three authorities, but also of the many equally well informed members and guests of the conference.

Any physician concerned with children, particularly with their emotional growth and personality development, will find these carefully recorded conversations a stimulating experience. Many of the thoughts that the Fact Finding Committee presented to the Midcentury White House Conference had their origin in these two sessions recorded in this book.

Kurzgefasstes Lehrbuch der orthopädischen Krankheiten. Von Professor Dr. Peter Pitzen, Direktor der orthopädischen Universitäts-Klinik und Poliklinik (Hüfferstiftung), Münster i. Westf. Fifth edition. Cloth. 17.40 marks. Pp. 286, with 213 illustrations. Urban & Schwarzenberg, Thierschstrasse 11, München 2; Meinekestr. 13, Berlin W. 15, 1950.

This book is written for the general practitioner so that he may become acquainted with the commoner orthopedic conditions encountered. The author states that it is designed to help the physician obtain a clear conception of certain physical conditions, which "in a way have remained diagnostic stepchildren in spite of their relative frequency and significance in regards to public health."

The style of the text is termed by the author "telegraphic." He has used this style in previous editions, but on many occasions he abandons it to give place to fuller descriptions of symptoms.

The subject material is well chosen, although some conditions, such as severe congenital defects of the extremities, could have been omitted in favor of other commoner ones such as bone tumors. Osteoid osteoma, a pathologic entity, recently described and investigated, is not mentioned.

The chapter dealing with orthopedic conditions of the foot and hip is particularly well done. It is remarkable how much diagnostic material may be embraced in a few pages. In some instances, conservative procedures are overemphasized, procedures which in the present light of our knowledge can hardly be accepted or justified. An example in point is the statement that satisfactory correction of a scoliotic deformity may be achieved by "muscle power." Modern opinion disagrees with this.

Surgical interventions are only casually referred to, perhaps with some justification, because the work is intended for general practitioners. Some mention, however, should have been made of the modern surgical treatment of scoliosis. Important and frequent orthopedic conditions, such as ununited fracture of the femur, are not mentioned. The description of the surgical treatment of malum coxae senilis, which for some reason the author calls arthrosis deformans of the hip, is poorly presented. The illustrations are numerous and good. The radiograms are equally satisfactory. As a whole, the book is well written and may be read with benefit by the general practitioner who reads German. A bibliography would have enhanced the value of the work, particularly for the student.

Chirurgie esthétique nasale. Par Marcel Galtier. Préface de M. Bouchet. Paper. 2000 francs. Pp. 233, with 172 illustrations. G. Doin & Cie, 8 Place de l'Odéon, Paris 6^e, 1950.

The first two sections of this book deal with development and surgical anatomy, respectively. The discussion of surgical anatomy, although inclusive, seems somewhat abbreviated in specific details. A section on artistic anatomy is interestingly presented. This part is very well written and cleverly presents variations in the nasolabial angle and classifications of the different types of profiles. An interesting discussion follows on the "photometer" and its relation to the various profiles. The different anomalies are also presented. Less than two pages are devoted to the physiology of the nose, which is probably the weakest section of the book. Sections on armamentarium and anesthesia are well done, as are the numerous procedures that are described to correct the various types of nasal deformities. Much space is devoted to preoperative and postoperative photographs. However, it would have been well in each instance to show both front and side views. The illustrations are well done and depict the procedures clearly. For anyone able to read French this book can be recommended as a good collateral source on the subject of nasal plastic surgery.

Personality and Psychotherapy: An Analysis in Terms of Learning, Thinking, and Culture. By John Dollard, [illegible] (Professor), and Neal E. Miller, Profes[illegible] Human Relations, Yale University, New Haven. [illegible] 19 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1950.

This book is addressed to students, teachers and research workers in the fields of personality adjustment, abnormal psychology and psychotherapy.

The authors have attempted to bring together in integrated form recent thinking in the fields of psychoanalysis, experimental methods of natural science and modern sociology, and anthropology. The purpose is to establish an overall psychologic basis for a general science of human behavior. In the hypotheses presented, the authors have drawn from the works of Freud, Pavlov, Thorndike, Hull, Sumner, Murdock, Kluckhohn and Warner. An attempt has been made to integrate a wide range of material, which includes the basic principles of learning, the understanding of socially learned drives, dynamics of conflict and the normal use of the mind in the solution of problems of childhood, neurosis and self study.

This book is a valuable contribution toward bringing about a unified concept of the fields mentioned as they relate to our culture.

The Amino Acid Composition of Proteins and Foods: Analytical Methods and Results. By Richard J. Block, Ph.D., Associate in Department of Physiology and Biochemistry, New York Medical College, New York, and Diana Bolling, B.S. Second edition. Cloth. $10.50. Pp. 576, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

This edition brings to the reader a revision which includes advances in the analysis of amino acids since 1945. The extended use of microbiological methods has been a major development in this field actually from about 1943.

Whenever possible, several procedures are given for the estimation of each amino acid. Whenever identical results were obtained by two widely different methods, the author emphasizes the point with regard to the confidence that is engendered thereby for each method.

For the food faddist and inveterate meat eater, the author makes an interesting observation that an essential amino acid is essential whether it comes from animal or vegetable protein. On this basis, the conclusion is drawn that it is just as arbitrary to make a distinction between plant and animal proteins as it is to draw a distinction for the carbohydrates.

The relative values of chemical and microbiological assays are appraised. The author considers that a combination of the chromatograph and chemical methods will yield the most significant results in the study of the structure of proteins and peptides. The microbiological procedures, on the other hand, will probably be of most value in the routine analysis of foods and feeds.

To the physician, this treatise would demonstrate the tremendous work of the supporting sciences of chemistry and biology in the advancement of knowledge incident to the important public health field of nutrition, which is a potent and basic prophylactic tool available to medical practitioners.

In presenting to the average reader the widely scattered literature on methods and results of protein analysis, this publication serves a very useful purpose.

The 1950 Year Book of Drug Therapy (October, 1949-September, 1950). Edited by Harry Beckman, M.D., Director, Department of Pharmacology, Marquette University School of Medicine, Milwaukee. Cloth. $5. Pp. 566, with 88 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1951.

The major portion of this textbook is devoted to abstracts of drug advances in the various major branches of practice, with editorial comments to highlight controversial points. Possibly, the best portion of the book is its introduction, in which the editor reviews the advances in drug therapy during the decade 1940 to 1950 in a concise thoughtful resumé.

A plea is made for physicians to realize that the socioeconomic impact of increased life span requires emphasis to the public that this increased longevity and freedom from infectious diseases materially increases the capacity to work of our older generations. In the opinion of the editor, some method must be evolved to absorb the productive capacities of elderly persons into industry if we intend to resolve some of the difficulties of geriatric patients.

The Folklore of Sex. By Albert Ellis, Ph.D. Cloth. $5. Pp. 313. Charles Boni, 3 Grove Court, New York, 1951.

Uniqueness marks the manner in which this survey of modern attitudes regarding sex was carried out by Ellis, who, in dedicating the volume to Havelock Ellis, notes with regret that they are not related. After considering various approaches, he settled on the plan of scanning all popular mediums of mass communication for a one day period. The day selected by Ellis was Jan. 1, 1950. What he found relating to sex aspects in that extensive, even though one day, survey is reported and analyzed under various classifications. In part 1 he determines popular attitudes on extramarital relations, and in successive sections he covers noncoital relations, sex relations involving pregnancy, sex organs, desires and expressions, sex crimes and "perversions," and sex control and censorship. The sections vary considerably in length, some taking little more than a few pages. All are filled with direct quotations from daily papers, popular magazines—"slick paper" as well as the "pulps"—at all levels from family to cartoon and "laugh" publications, books, the legitimate stage, radio, television, and motion pictures. The findings constitute a surprising haul that will amuse some, shock others and move still others to "I-told-you-so" comments.

In addition to providing running discussion of what he culls from the array of sources consulted, Ellis has a special section on statistical considerations and another termed "Summing Up." Numerous tables are contained in the first chapter of the former.

Ellis has made an important contribution in this field, and, because it does not depend on interviews or personal opinions other than those of the researcher, it can be accepted as more enlightening than many other sex surveys. After accompanying Ellis on his tour, one must conclude that sex is an important subject, since there is so much of it being constantly paraded. The author suggests three eventualities: learning to tolerate the present contradiction between liberal and conservative views, further liberalization in that respect, or a return to a distinctly conservative attitude. He offers no opinion as to what it will be.

In a bibliography are listed all the sources consulted, and it is an imposing array.

Bases of Human Behavior: A Biologic Approach to Psychiatry. By Leon J. Saul, M.D., Professor of Clinical Psychiatry, University of Pennsylvania School of Medicine, Philadelphia. Cloth. $4. Pp. 150, with 8 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1951.

This book presents an introduction to the basic theories of dynamic psychiatry and considers the relation of these theories to present day concepts of physiology, with particular reference to new theories concerning the physiologic effects of stress. Stress is considered to be either a reactive type arising from the conflict of a person with his environment, or an inner type arising from basic emotional conflicts that develop in childhood. An attempt is made to follow the impact of psychic and emotional tension through to physiologic end-point reactions on body tissues. The style of the book is simple and clear. It should be of considerable value to beginning students of medicine in clarifying the theoretic concepts that underlie the expanding field of psychosomatic medicine.

Taschenbuch der Anatomie. Band 2: Gastropulmonalsystem (Verdauungs- und Atmungsorgane), Urogenitalsystem (Harn- und Geschlechtsorgane), Gefässsystem. Von Professor Dr. med. Hermann Voss und Dozent Dr. med. habil., Dr. phil. Robert Herrlinger. Third edition. Half-cloth. 12 marks. Pp. 340, with 204 illustrations. Gustav Fischer, Villengang 2, Jena 15, Germany, 1950.

This admirable little book measures only 118 by 158 mm. Nevertheless, it covers the gastrointestinal, respiratory, urogenital, cardiovascular and lymphatic systems with precision and in detail. The 204 diagrams are all labeled with unabbreviated names pointing directly to the intended parts. It has a good index and even a short bibliography. All this is achieved, by some miracle of the printer's art, without sacrifice of legibility in either text or legends. The book will be handy for anatomy students who can read German, and it should also be studied as a remarkable example of pocket-sized textbooks of good quality.

Facts About the Menopause. By Maxine Davis. Cloth. $2.50. Pp. 172. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1948-1951.

The purpose of this volume is to prepare the woman approaching the menopause for this transitional period in her life. The many misconceptions prevalent in our folklore concerning the climacteric are discussed, exposed to scientific analysis and disposed of as largely false. The physiology, endocrinology, symptoms and usual treatment of the menopause are reviewed in simple, understandable language. Questions concerning libido, sex life and personal hygiene are answered. The author gives too much prominence to the climacteric in men when one considers the relatively low incidence of the syndrome in men as compared to women. The book makes good reading for the physician to recommend to his menopausal patients.

QUERIES AND MINOR NOTES

ABSCESSED TEETH

To the Editor:—*I frequently see children with swollen jaws resulting from abscessed teeth. They seem very ill. They have been to their dentist, but he tells them to wait, as the tooth cannot be pulled until it "cools down." Is it not true that pus anywhere should be drained promptly and that with antibiotics there is much less danger of septicemia if the tooth is pulled than if the tooth is left in? Many dentists do not know how to use penicillin. Should they not pull such a tooth and refer the patient to the physician for antibiotic treatment? Is it that important to save an infected tooth, for alignment's sake, that a child should be allowed to suffer so many days? I would appreciate some discussion.*

David Hoehn, M.D., Holdingford, Minn.

This inquiry was referred to two authorities, whose respective replies follow.—Ed.

Answer.—The above question illustrates one of many instances wherein the patient will benefit by the cooperative efforts of the dentist and physician. Prior to the advent of the antibiotics, teeth were not usually extracted during the acute phase of such an infection, although when indicated incision and drainage of abscesses were performed. Today with adequate preoperative and postoperative antibiotic therapy, extraction of the offending tooth when necessary is usually not contraindicated. Many dentists prefer not to administer drugs parenterally and consequently welcome the cooperation of the physician. The physician, however, should have the opportunity to examine the patient and prescribe and administer proper medication preoperatively. Such infected teeth most often cannot be saved. Obviously the tooth must be sacrificed if the patient's health is endangered. The deciduous and first permanent molars are the most frequent offenders. Although early loss of these teeth may lead to malocclusion, it can be prevented by maintenance of the space created by loss of the tooth by means of a dental appliance.

Answer.—There can be little question that gums should be drained by incision as soon as one is sure pus is present. Often the infected tooth may be removed at the same time, but sometimes this procedure must be delayed until cellulitis of the soft parts has subsided and there is definite evidence of localization. There is no question, also, that depot penicillin in doses of at least 400,000 units one hour before the time of surgery offers considerable protection against bacteremia. In case of badly infected teeth, the depot penicillin should be repeated at intervals of eight to 12 hours until the infection has subsided. The decision as to the time of the surgical procedure should be the joint responsibility of the extractionist and the physician. No infected tooth should be retained for the purpose of alignment or for any other reason.

NECROBIOSIS LIPOIDICA DIABETICORUM

To the Editor:—*Is there any new therapy for necrobiosis diabeticorum?*

M.D., New York.

Answer.—There is no specific therapy, new or old, for necrobiosis lipoidica diabeticorum. Careful control of the diabetic condition, local cleanliness, watchful waiting and protection of the affected area to prevent further injury are best measures. Long years of observation show that almost invariably the lesions subside eventually and a few so completely as almost to obscure the original lesion. Even the worst cases improve, but time appears to be the factor of chief importance.

CHEST PAIN FOLLOWING INHALATION OF COLD AIR

To the Editor:—*A 50 year old man complained of severe pain in his chest on inhalation of cold air, followed many times by hemoptysis. His chest x-ray appeared within normal limits as did the cardiac shadow. Bronchoscopy and bronchograms disclosed no abnormalities. Smears were made from the bronchial tree; cytological study did not disclose cancer or other abnormality. I would appreciate any help in diagnosis and treatment that might be followed.*

W. H. Brady, M.D., Gooding, Idaho.

Answer.—The problem presented in the case reported is somewhat obscure. There are persons who react violently to too much cold air. This has been designated by some allergists as cold allergy, or allergy to physical agents. It seems to be an oversensitive condition of the bronchial mucosa, or the nerve endings in the bronchial mucosa.

Of recent years there has been a great deal of information obtained about virus infections of the bronchi. Many of these infections begin in the mucosa and cause a profound irritation, with reaction to cold air. If there is access to a good virus laboratory, a sample of the sputum should be studied for virus.

The treatment of either one of these conditions would be essentially the same. If virus proves to be causative, aureomycin may help. In severe virus infections of the bronchial tree, however, an immediate transfer to a warm climate has been found to be effective. If this is not possible, an air-conditioned, warm room is advocated. Otherwise, the patient will have to be treated by the ordinary heating facilities available, and with hot packs when the irritation becomes too severe, with the possible addition of sedative cough mixtures.

EXOPHTHALMUS

To the Editor:—*Has there been anything found that will help exophthalmus following hyperthyroid? A patient was subjected to thyroidectomy April 17, 1950. The present basal metabolic rate is + 8. The patient has chronic irritation of the conjunctivas probably due to exposure to air.*

Eugene C. Lowe, M.D., Miami, Fla.

Answer.—The exophthalmos that accompanies Graves' disease is not the result of the hyperthyroidism itself; hence removal of the thyroid does not as a rule cause any striking change in the exophthalmos. The same is true of treatment with radioactive iodine or with the antithyroid drugs. Oftentimes the appearance of exophthalmos improves, because after correction of the hyperthyroidism the widening of the fissures decreases, but the actual position of the eyes usually remains about the same. Conjunctival irritation is due to failure of the lids to close, and this oftentimes can be corrected by tarsoplasty, in which the corners of the lids are sewn together to narrow the aperture a little. Boric acid ointment can be used under the lids; if edema is present it is wise to advise the patient to sleep in a sitting position. The eyes should be shielded from the wind at all times.

FRUIT JUICES AND ATOMIC BURNS

To the Editor:—*Are orange and grapefruit juices contraindicated in the treatment of burns, atomic or otherwise, because of the high potassium content of these juices? Can you refer me to literature on this subject?*

May R. Mayers, M.D., New York.

Answer.—There is no present evidence that orange and grapefruit juice are contraindicated in the treatment of atomic burns. Studies on potassium levels in burns have been done by Moore, Longohr, Ingebretsen and Cope (*Ann. Surg.* **132**:1, 1950) and Crossweller, Farmer and Franks (*Brit. M. J.* **2**:242, 1950).

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

SUBSTANCES USED TO STIMULATE FIBROUS TISSUE

To the Editor:—*To what extent is polyethylene (polythene®) being recommended in surgical cases requiring fibrous tissue formation? Have any studies been published on dicetyl phosphate in human subjects for the same purpose (fibrous tissue formation)? Are any other substances being used to stimulate fibrous tissue formation? I am familiar with results published on polyethylene in hernia and aneurysm; has it been used for any other conditions?*

Nelson Libanio, M.D., Rio de Janeiro.

Answer.—Polyethylene is being used frequently by a number of investigators and clinicians as a vehicle or framework for holding irritating substances in place in an area of the body where fibrosis is desired. The use of polyethylene in this role as a support for irritants represents only a small fraction of the clinical use of the material, most of which is employed in its pure form to avoid any foreign body reaction. This inert property of pure polyethylene permits its use as temporary or permanent prosthesis in reconstruction of strictures or defects in large arteries, bile ducts, bronchi and interventricular cerebral ducts as well as nonirritating coverings for the brain, tendons and similar situations where fibrosis would be harmful. Polyethylene film has been recommended for use as a protective sheath under metal bands used to progressively constrict large arteries. This sheath prevents pressure necrosis of the vessel wall at the edge of the metal band according to P. C. Shea. A search is being made now for suitable absorbable substitutes for polyethylene, which represents a permanent sheet of nonabsorbable material. The gradual absorption of this film would avoid complications such as reoperation for removal of the polyethylene, which may prevent healing when an infection occurs, as has been reported in one instance.

Dicetyl phosphate has been isolated by Yeager and Cowley as the irritating factor in the original impure polyethylene manufactured by the solvent cast process, the use of which has been discontinued by some manufacturers. Pure polyethylene film is now being impregnated with dicetyl phosphate powder by rubbing of the powder into the film while it is softened by heating. Difficulty has been encountered in sterilization of the polyethylene film without removal of the water and alcohol soluble dicetyl phosphate. Repeated phosphate analysis of both the film and the sterilizing solution by Dr. W. R. Todd of the biochemistry department at the University of Oregon Medical School indicates that soaking the impregnated film in 1: 1,000 aqueous benzalkonium chloride solution for 20 minutes removes less of the dicetyl phosphate than other methods of sterilization. Although dicetyl phosphate has been used in a number of patients for production of fibrosis, there appear to be no published data on postmortem findings in humans. Yeager and Cowley, as well as Poppe, have observed a pronounced fibrous tissue reaction around the dicetyl phosphate in dogs.

Substances other than dicetyl phosphate that have been used to stimulate fibrous tissue are numerous. Cellulose hydrate, the common type of cellophane, is probably the most frequent, but the variable factors and sizings used in its manufacture have made its reactions somewhat unpredictable. Asbestos powder, as recommended by Claude Beck for creating vascular adhesions in the pericardial cavity, has been used clinically, but here again the irritating properties of asbestos vary with the manufacturing process. Talcum glove powder has been shown by a number of investigators to produce intestinal adhesions and has been used by Poppe when a small aneurysm has been encountered unexpectedly and other preparations were not readily available. Rosaniline dye has been used in animals to produce fibrosis but, as indicated by early animal experiments (Poppe and Renault), proved too toxic for clinical application.

Polyethylene containing dicetyl phosphate has been used primarily in reinforcing aneurysms and hernia repair. Other uses consist of wrapping it around the patent ductus or carotid artery in cases of cerebral aneurysm to produce slow but progressive development of strictures and stenosis.

HAIR DYES

To the Editor:—*A patient requested information on a reliable hair dye. I was unable to help her, and I did not wish to suggest any one product without the opinion of the American Medical Association.*

Wilfred Yoslow, M.D., New York.

Answer.—Certain general precautions are indicated in the use of most hair dyes. While the incidence of unfavorable reactions is low, they do occur and they are usually due to the lack of adequate directions for use, carelessness on the part of the user or a sensitivity that could not be predicted by present measures. Suggestions for maximum protection against unfavorable reactions are as follows: No hair dye should be used where lesions are present on the scalp; no hair dye should be permitted to get into the eyes, and directions should be followed carefully.

In general, three main types of dyes are available. Vegetable dyes, the most popular of which is henna, are among the safest. Cosmetically speaking, the disadvantages are such that their use is limited.

Metallic salt hair dyes are particularly popular for home use. Although the cosmetic results may not be entirely satisfactory, indications at present are that metallic salts are not absorbed through the intact skin. Possibly a serious reaction to a metallic hair dye would result if repeated small amounts were to enter the blood stream over a prolonged period through scalp lesions, through careless oral ingestion or through the mucous membranes. No report is available that establishes a metallic salt hair dye as the cause of metallic salt poisoning.

The aniline type of hair dye is probably the most effective and is also the greatest potential health hazard. Among the most extensively used are paraphenylenediamine and paratoluylenediamine. The Food, Drug and Cosmetic Act of 1938 prohibits the use of any of these dyes in eye make-up, because of serious reactions which resulted prior to that time from their use in eyelash dyes. Furthermore, these dyes are relatively frequent sensitizers, and a caution statement on the labeling to this effect is required by the foregoing law. In addition, directions must be included for a skin test to be executed before each and every application of the dye.

Another type of dye, which is not so commonly used, is the sulfonated azo type dye. Indications are that these may be safer than other coal tar dyes, but several applications are usually necessary to obtain the shade designated.

While certain hazards obviously exist in the use of hair dyes, the number of reported cases of reactions is small in relation to the number of persons who use hair dyes, rinses and other hair coloring agents regularly. Reactions can be kept to a minimum by strict adherence to directions and general precautionary measures.

TREATMENT OF CANCER OF OVARY

To the Editor:—*I removed a 2,240 Gm. ovarian tumor with a pathological diagnosis of papillary pseudomucinous adenocarcinoma of the ovary, grade 2. I also did a complete cleanout of the patient's pelvis. Numerous seedings were present over the peritoneum. The stitches were removed, and x-ray therapy was begun a day later. Would you advise further palliative therapy in the form of testosterone proprionate? If so please outline dosage, frequency and duration. When should this therapy be started?*

W. J. Hill Jr., M.D., Shreveport, La.

Answer.—Total removal of the uterus, tubes, ovaries and omentum, with excision of all implants followed by deep therapy is the accepted treatment for this type of malignancy. There have been no reports of successful therapy with the use of testosterone propionate. If it were to be utilized, it should be given in doses used for the effective treatment of metastatic breast cancer, namely, 50 mg. three times a week for a total dose of at least 1,200 mg. If following this there has been improvement, maintenance therapy should be continued indefinitely. The treatment, if employed, should be begun at once.

WHOOPING COUGH VACCINE AND ENCEPHALITIS

To the Editor:—*Recent reports indicate that some few children may get encephalitis following the injection of whooping cough vaccine as a separate injection or mixed with either tetanus or diphtheria. I have been unable to find any such reports. Do you know of any such cases?*

W. Price Killingsworth, M.D., Port Arthur, Texas.

Answer.—Among the 15 cases of encephalitis following the injection of pertussis vaccine reported by Byers and Moll (*Pediatrics* **1**:437 [April] 1948) the vaccine combined with diphtheria or tetanus toxoid, or both, was administered in three. It should be remembered that most of the cases in the foregoing series occurred in a 10 year period when triple antigens were not available. More recently Anderson and Morris (*Lancet* **1**:537 [March 25] 1950) and Vahrman (*Brit. M. J.* **2**:608 [Sept. 9] 1950) have reported encephalitis after injections of combined diphtheria and pertussis antigens. However, there seems to have been no instances recorded lately when triple antigens were used.

FORMULAS FOR DETERMINING BASAL METABOLIC RATE

To the Editor:—*My records include two formulas which have been employed in determining the approximate basal metabolism of a person from his blood pressure and pulse rate: BMR = (PP + PR) — 111; BMR = 0.683(PR + 0.9 PP) — 71.5. Could you please advise where these formulas first appeared and what, if any, practical value might be placed on them?*

I. Jacques Yetwin, M.D., Springfield, Mass.

Answer.—The formula BMR = 0.683 (PR + 0.9 PP) — 71.5 is one suggested by Read (*J. A. M. A.* **78**:1887 [June 17] 1922; *Arch. Int. Med.* **34**:553, 1924).

The formula BMR = (PP + PR) — 111 is a modification of the Read formula made by Gale and Gale (*Lancet* **1**:1287 [June 13] 1931).

An excellent criticism of these formulas has been given by Eugene Du Bois (Basal Metabolism in Health and Disease, ed. 3, Philadelphia, Lea & Febiger, 1936, pp. 340-342).

CHRONIC SINUS INFECTION

To the Editor:—*What is the consensus among specialists in diseases of the nose, throat and ear and in roentgen therapy concerning treatment of chronic sinus infection and/or lymphoid hyperplasia of the nose and throat in children aged 3 months to 8 years? In the hands of a competent roentgenologist is there danger of damage to the eye and the optic nerve, to the ear and the eighth nerve?*

J. Reginald Myers, M.D., Everett, Pa.

Answer.—Roentgen therapy for the conditions mentioned is helpful, and results are often gratifying. When the worker is an expert, damage to the eye and its optic nerve or to the ear and its nerves would be almost impossible. The doses normally used are not such that they can harm these or any other structures in the area.

HIRSUTISM

To the Editor:—*A girl 20 years old, single, has excessive hirsutism of the face and upper lip. Menses are fairly regular (every six weeks). She began menstruating at age 13. Would doses of estrogens 1 mg. of diethylstilbestrol every day for two months, do anything toward removing the excessive hair growth? There is no evidence of ovarian or adrenal tumor.*

Lewis W. Berry, M.D., Chelan, Wash.

Answer.—The problem outlined is a common one and usually very distressing to the afflicted person. The following procedure is suggested:

1. Careful history and physical examination. [illegible] regular intervals, normal development of the breasts and external genitalia, absence of enlargement of the clitoris and absence of change in the voice suggest that a masculinizing tumor is not present.

2. At least three determinations of the 17-ketosteroid excretion in the urine on different days to exclude the possibility of excessive production of androgen.

3. If no masculinizing tumor is present, the administration of estrogen in large doses will inhibit the growth of hair but will not cause it to fall out.

4. It is probably desirable to remove the hair on the face by electrolysis.

ANESTHESIA AND QUININE IN OBSTETRICS

To the Editor:—*In* The Journal *of Feb. 17, 1951 (page 530) are two queries on obstetric problems, "Saddle Block Anesthesia in Obstetrics" and "Use of Quinine During Pregnancy." I disagree with some of the statements in the answers. 1. Regarding the use of saddle block anesthesia in obstetrics, the statement is made that this type of anesthesia "merits an important position in the management of premature labor, toxemia and certain instrumental deliveries—particularly the posterior position of the occiput—insuring against anoxic depression of the infant from general anesthetics." While agreeing with the other points I disagree with the recommendation that it be used in posterior positions of the occiput. For various reasons its use in these positions is found to further complicate the picture, except when the cervix is fully dilated and the head is well down. This has been observed repeatedly by my associates and me, both in private practice and in our service at Charity Hospital, where the method was first employed by Adriani and his associates of the department of anesthesia. 2. Regarding the use of quinine in the treatment of malaria during pregnancy and lactation, we have not hesitated to use it by mouth in the usual dosage. There is no advantage in its use by injection. I doubt that it has any stimulating effect on the pregnant uterus; this view is supported by numerous pharmacologists. Its employment as an agent to induce labor has been discontinued because it has been found to be of no value. In larger doses, it may cause the death of the fetus in utero. In the doses used in the treatment of malaria, it might affect the hearing apparatus of the fetus but has not, as far as is known, produced fatal effects. For these reasons, efficient substitutes for quinine are advisable in the treatment of malaria in the pregnant woman.*

E. L. King, M.D.,
Professor of Obstetrics, Emeritus,
Tulane University,
New Orleans.

VISUAL ACUITY OF A TEACHER

To the Editor:—*In the answer in* The Journal *(March 10, 1951, page 774) to the query on "Visual Acuity of a Teacher" an erroneous recommendation is made, to the effect that a teacher with low visual acuity would be especially well adapted for teaching sight-saving classes. Having observed the work of many teachers of children with partial sight all over the United States, I am convinced that such a teacher would be at a great disadvantage. Although many school books are available in 18 point type, the variety of books so [illegible] is limited. It is necessary in every class of children with partial sight that the teacher secure other books and publications, including newspapers and news magazines, printed in [illegible] 8 point and even smaller type, which are of [illegible] interest in education. The teacher of children with partial sight, therefore, needs particularly good vision to interpret to the children material that they cannot read. Often the teacher types the most significant of such material on a bulletin board typewriter so that it may be available to the children. This she would not be able to do if she were seriously handicapped. Persons with such handicaps should not be [illegible] consider themselves "especially well adapted" for teaching children with partial sight.*

Franklin M. Foote, M.D.,
Executive Director
National Society for the Prevention of Blindness,
1790 Broadway, New York 19.

John W. Cline

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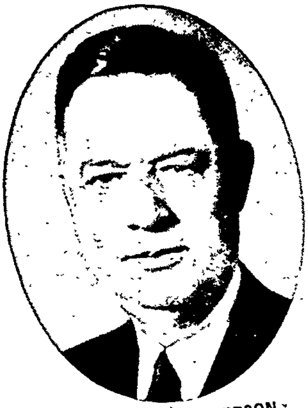

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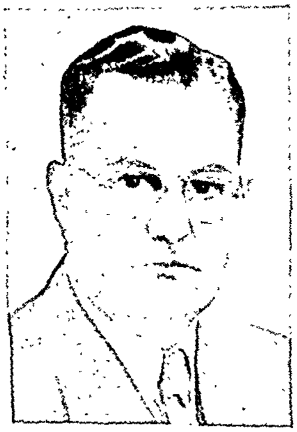
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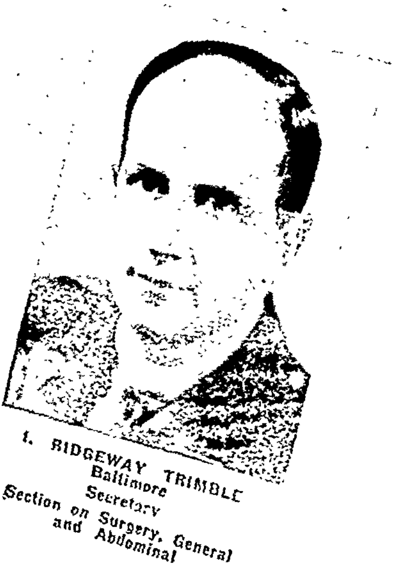

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EARLY DETECTION OF BRONCHIOGENIC CARCINOMA

Donald L. Paulson, M.D.
and
Robert R. Shaw, M.D., Dallas, Tex.

The over-all salvage rate for bronchiogenic carcinoma remains disappointingly low in spite of advances in its surgical treatment. Pulmonary resections for this neoplasm are now common and can be performed with low morbidity and mortality rates. The disappointing fact is that although surgical removal offers the best treatment available today, it cannot be applied to two thirds of the patients with bronchiogenic carcinoma because the cancer is so far advanced when first seen by the surgeon. The medical profession, having developed an acceptable treatment for cancer of the lung, is now confronted with the problem of its earlier detection in order to make its treatment more effective for the over-all group of persons with this disease.

Recently, we have surveyed our experience during the past three and one-half years with 362 patients having bronchiogenic carcinoma. Of this group, 180, or 50 per cent, were considered clinically inoperable when first seen because the cancer was so far advanced. Of the remaining 182 patients operated on, the lesion was found to be inoperable at exploration in 75, or 20 per cent of the total number. It was possible for us to resect the lesion in 107 patients, or only 30 per cent of the original number. In approximately one half of these, the resection was classified as palliative and not curative because of the extent of the lesion.

The patient, the physician and the natural history of the cancer itself all share in the responsibility for this state of affairs. A review of the histories of the patients in this series revealed that there was an average elapsed time of five months from the onset of symptoms until the patient sought medical advice. This delay is attributed to the casual attitude of the patient toward his symptoms and the failure of the cancer itself to produce any or, as far as the patient is concerned, only trivial symptoms during the initial few months. Of greater significance, however, is that another six month period, on the average, was consumed before the correct diagnosis was made or suspected after the patient presented himself to the physician. A total of 11 months was lost on the average before suitable treatment could be applied. It is not surprising, therefore, that only 30 per cent were resectable.

Through education of the public, with particular reference to the significance of a cough and the necessity for periodic roentgenograms of the chest, the delay on the patients' part may be reduced but its elimination will be difficult. The six months' delay on the part of the physician, however, constitutes a real challenge to all of us, which we must accept and answer.

What are the reasons for this six months' delay in the physician's suspecting or making a diagnosis of bronchiogenic carcinoma? It cannot be attributed to a lack of concern or conscience on the part of the physician in most instances. In almost all cases it is due to an error in the original diagnosis and the absence of a characteristic clinical pattern early in the disease. The symptoms of a bronchiogenic neoplasm are largely those of infection, common to almost any lung disease. Its onset is insidious, and its manifestations are not usually clearly indicative of the underlying cause until late in its natural course. For this reason, the physician is frequently fooled early in the course of the disease and makes an erroneous diagnosis of asthma, bronchitis, virus pneumonia, unresolved pneumonia, tuberculosis or a fungus disease.

Attitudes of mind may contribute to the delay in diagnosis. The medical profession as a whole does not fully appreciate the prevalence of bronchiogenic carcinoma. This tumor by apparent and probable actual increase is now the commonest cancer as a cause of death in men. The greatest number of cases occur between the ages of 40 and 60 years. If this prevalence were fully appreciated, bronchiogenic carcinoma would be high on the list of possibilities in the differential diagnosis for any pulmonary or bronchial lesion in a man over the age of 40. Suspicion alone of the possibility of this lesion leads to an earlier accurate diagnosis. Also the physician is naturally reluctant to make a diagnosis of such a serious tumor with all it entails, and he tends to favor a less serious condition which can be treated by simpler meas-

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Read before the Section on Diseases of the Chest at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

ures and carries a better prognosis. This reluctance should give way to an eagerness on the part of the physician to detect these neoplasms early, when a cure is still possible.

Virus or atypical pneumonia and unresolved pneumonia are two of the commonest erroneous diagnoses, which contribute to the delay in the discovery of bronchiogenic carcinoma. The diagnosis of virus or atypical pneumonia can be made only by inference; there is no positive diagnostic test for this condition. If a diagnosis of virus or atypical pneumonia is made and the lesion within the chest does not clear promptly, the physician must consider the possibility of another cause such as bronchiogenic carcinoma. Virus pneumonia accounted for over one half of the errors in diagnosis in patients having bronchiogenic carcinoma who were finally referred to us for treatment.

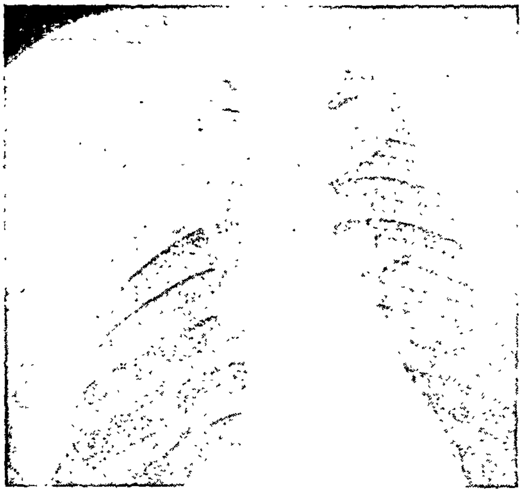

Fig. 1.—Roentgenogram of the chest taken in January 1949, revealing an area of obstructive pneumonitis in the right upper lobe.

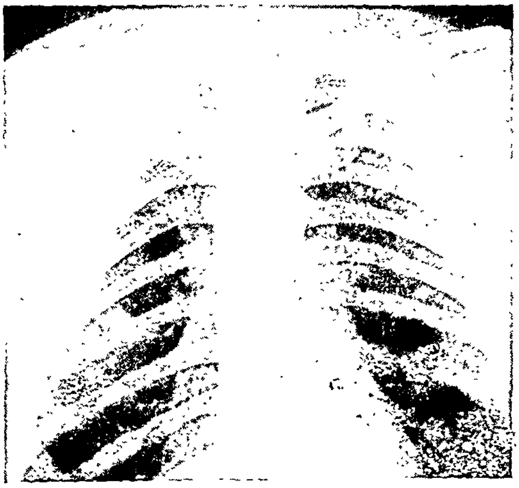

Fig. 2.—Roentgenogram of the chest of the same patient as in figure 1 taken in May 1949, revealing clearance of the obstructive pneumonitis by means of antibiotic therapy. A carcinoma is still present but not visualized.

Unresolved pneumonia is a diagnosis that should be discarded in view of an improved understanding of pulmonary lesions. Unfortunately it is used as a description of a lesion of unknown origin visualized in the roentgenogram. It infers a benign condition which should be treated conservatively. Yet pathologists do not recognize it as an entity and use the term fibroid pneumonitis to describe such a lesion. Fibroid pneumonitis usually results from an inflammatory process distal to a blocked bronchus, and the block may be due to a neoplasm. A true pneumonia will resolve promptly, and if resolution does not occur, another cause in differential diagnosis must be considered. Bronchiogenic carcinoma, bronchiectasis, abscess and tuberculosis are the common causes of an obstructive (fibroid) pneumonitis. In a man over the age of 40, the lesion must be considered due to carcinoma until proved otherwise. The proof may readily require surgical exploration.

The third factor influencing the delay in the diagnosis of bronchiogenic carcinoma is its natural history or pathologic course. Unfortunately there is a large group of patients in whom it is impossible for one to make the diagnosis at a time when surgery is still applicable. As a result of our study of 362 patients, we found that in 25 per cent the initial complaint that prompted the patient to seek medical advice was one indicating inoperability, such as headache due to a cerebral metastasis, loss of voice due to involvement of the recurrent laryngeal nerve, painless pleural effusion, dysphagia due to involvement of the esophagus, involvement of distant organs as the peritoneum, or subcutaneous metastases due to generalized spread of the cancer. The insidious course and the paucity of symptoms early in this group constitute an insoluble problem in diagnosis except by routine, periodic, roentgenographic examination of the chest. Twenty per cent of our patients had an undifferentiated bronchiogenic carcinoma. This cell type is highly malignant, rapidly invasive and tends to metastasize early. Only 8 per cent of the resections were made up of undifferentiated carcinomas, and only one of these patients has survived over 12 months. It is widely recognized that an undifferentiated carcinoma is practically a sign of inoperability in itself. If 25 per cent of the patients in whom the initial complaint indicated inoperability are added to the 20 per cent who have an undifferentiated type of carcinoma and allowance is made for some overlapping in the two groups, we estimate that roughly 40 per cent of patients having bronchiogenic carcinoma are inoperable when first seen by their physician. This leaves about 60

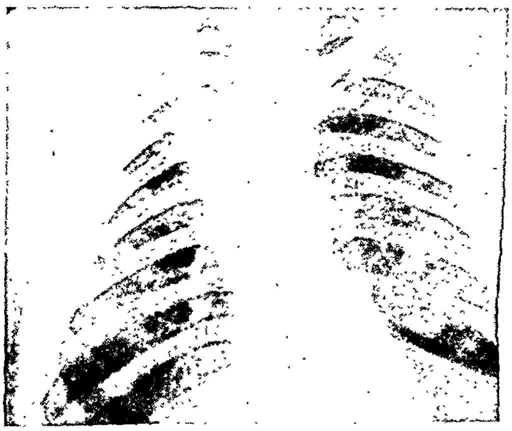

Fig. 3.—Roentgenogram of the chest of the same patient as in figures 1 and 2 taken in September 1949, revealing an atelectasis of a portion of the right upper lobe. Surgery at this time revealed a bronchiogenic carcinoma.

per cent, or two thirds, in whom early diagnosis may make a cure possible. Today we are getting the opportunity in only 30 per cent or less than one third.

SYMPTOMATOLOGY

Bronchiogenic carcinoma passes through early a silent phase of variable duration, depending on its growth potential. It produces symptoms only by breaking through the bronchial mucosa, which thereby produces an irritating cough, or by blocking the bronchus, with the resultant obstructive pneumonitis in the area of lung supplied by that bronchus. The cough is productive of mucoid, blood-streaked or rusty sputum. In many instances the first symptoms are common to the less serious respiratory disorders and consequently receive little serious attention. As time goes on, these symptoms become more severe, and new ones are added. Cough, pain, weight loss, hemoptysis, dyspnea, fever, recurrent respiratory infections, wheezing and hoarseness are the symptoms that develop later in the course of the disease. Cough is the most constant symptom and usually persists throughout the course of the disease.

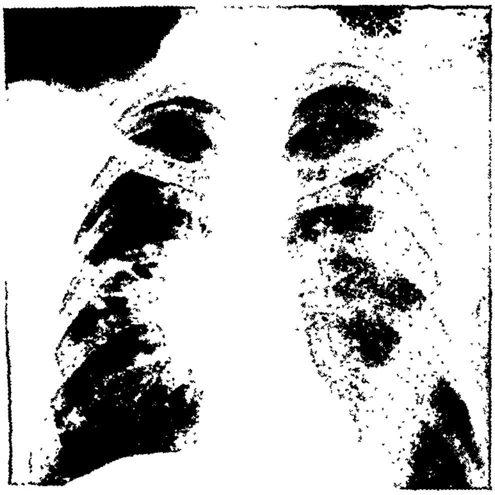

Fig. 4.—Roentgenogram of the chest illustrating a lobulated unilateral mass with a surrounding pneumonitis typical of a bronchiogenic carcinoma.

Wheeze and hemoptysis usually occur early and are due to encroachment on the bronchial lumen or erosion of the mucosa. Pain is actually a late symptom unless it be due to the accompanying pneumonitis. The pain of the carcinoma itself is caused by pleural, chest wall or mediastinal involvement, all of which portend an already far advanced lesion. Weight loss, dyspnea, fever and hoarseness all come late. There is no characteristic symptomatic pattern for bronchiogenic carcinoma until late. We must raise our indices of suspicion to detect this lesion early without the advantage or benefit of a characteristic symptomatic pattern.

ROENTGENOGRAPHIC EXAMINATION

Roentgenographic examination of the chest is the most valuable single method available for the early detection of bronchiogenic carcinoma. The neoplasm itself may not be visualized usually, but its effects are seen as areas of obstructive pneumonitis (figs. 1, 2 and 3). Lesions within the hilum growing outside the bronchial lumen may appear as a lobulated unilateral mass. The shadow cast on the roentgenogram is composed of tumor, lymph nodes and the pneumonitis in the adjoining lung tissue (fig. 4). A tumor which grows mainly into and around the bronchus may produce collapse of an entire lung, a lobe or a segment, with retraction of the mediastinum and the diaphragm (fig. 5). Earlier the affected lung, lobe or segment may be emphysematous because of trapped air. An early roentgenographic sign of bronchiogenic carcinoma is a localized area of emphysema on expiration.

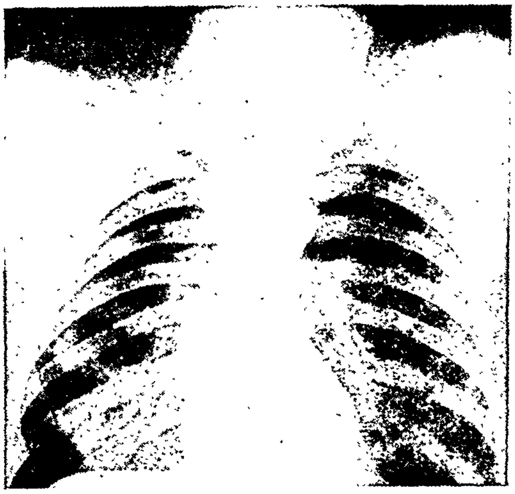

Fig. 5.—Roentgenogram illustrating segmental atelectasis of the right lower lobe due to bronchiogenic carcinoma.

Tumors arising in smaller bronchi rapidly become obstructive and early give rise to a circumscribed, round or oval shadow in the roentgenogram. It must be differentiated from the tuberculoma, coccidioidal granuloma, cyst and abscess (fig. 6). Usually this is impossible except by exploratory thoracotomy. Not infrequently this type of lesion undergoes cavitation due to central necrosis or the associated pneumonitis (fig. 7). In such instances an erroneous diagnosis of lung abscess may be made by the roentgenologist.

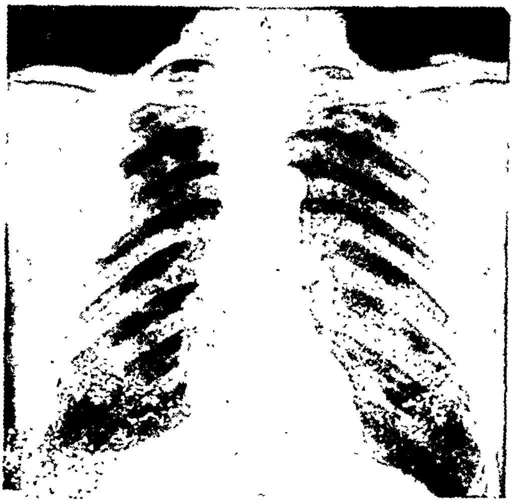

Fig. 6.—Roentgenogram illustrating peripherally located bronchiogenic carcinoma of the right upper lobe.

Tumors arising in the extreme periphery of the lung may not cast a shadow on the roentgenogram. Four cases in this series were of this type. The initial symptom was pain. Surgical exploration revealed a plaque of carcinoma involving visceral and parietal pleura. A peripheral opacity separate from the underlying lung may be visualized in the roentgenogram. Tumors of this type in the apex are referred to as superior sulcus tumors. They may occur on any surface of the lung. Pleural effusion may be the first sign of a peripherally located tumor.

Both posteroanterior and lateral roentgenograms should be utilized in any examination of the chest, because there are large areas in the lung fields not visualized by the ordinary posteroanterior roentgenogram alone. Small neoplasms may be obscured by the heart shadow, the arch of the aorta or the pulmonary vessels. A lateral roentgenogram will visualize lesions in these obscure areas. Bronchography may be of value in revealing an abrupt bronchial block. Laminography likewise is of great value in showing bronchial blocks or tumors in the above mentioned obscure areas.

One must always be mindful of the fact that roentgenograms reveal shadows only, and that there is nothing diagnostic of the type of shadow produced by a bronchiogenic carcinoma. By experience we have learned to make a roentgen diagnosis on the basis of percentage possibilities. Very often actual surgical exploration is necessary for the precise determination of the nature of the lesion. Interpretation of the shadow in the roentgenogram must be made in correlation with the history, the physical signs, laboratory findings and observations made at bronchoscopy.

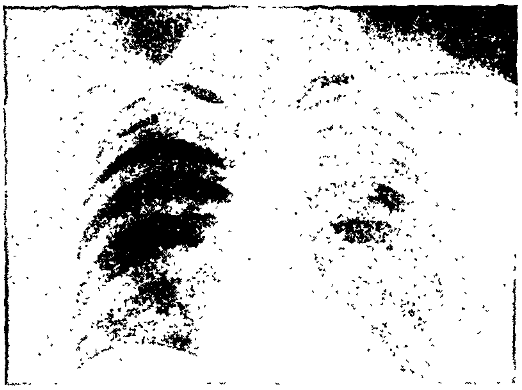

Fig. 7.—Roentgenogram illustrating cavitary carcinoma of the left upper lobe.

SPECIFIC METHODS OF DIAGNOSIS

Of the specific methods of diagnosis in bronchiogenic carcinoma, bronchoscopy is the most valuable. By this procedure, one is able to visualize the bronchial tree, obtain tissue from the lesion for study by the pathologist and collect bronchial secretions or washings for cytologic study. It must be remembered that all parts of the bronchial tree are not visible bronchoscopically. This means that carcinomas arising in the smaller bronchi are not accessible to either visualization or biopsy. Bronchial secretions or bronchial washings may be obtained from the suspected lobe. Malignant cells which have exfoliated from the neoplasm may be found in the material thus aspirated. Examination of the patient's sputum may likewise reveal the presence of malignant cells. In view of the limitations of bronchoscopy in the examination of the tracheobronchial tree, it must be remembered that a negative finding in bronchoscopy or failure to find malignancy in either a biopsy or in bronchial secretions or washings does not rule out carcinoma. In other words, a positive finding is of great significance but a negative finding does not rule out the possibility of carcinoma.

Lung aspiration or needle biopsy, although advocated by some, is, in our opinion, hazardous and superfluous. If one suspects carcinoma, exploratory thoracotomy should be done anyway, regardless of the findings by needle biopsy. The dangers of needle biopsy are air embolism, pneumothorax, spread of the carcinoma along the needle tract, tumor embolism and empyema. In our opinion the use of aspiration biopsy should be limited to those patients in whom exploratory thoracotomy is contraindicated and a proved diagnosis is desirable.

Another specific method of diagnosis in bronchiogenic carcinoma is exploratory thoracotomy. The risk of exploratory thoracotomy is very low, being no greater than the risk of exploratory laparotomy. It so happens that most of the lesions that will be confused with bronchiogenic carcinoma are amenable to and should be treated by resection. At the time of the exploratory thoracotomy, biopsy of malignant tissue in the hilar lymph nodes or at the extreme periphery of the lung may be performed. If the lesion is inaccessible for biopsy, either a segmental resection or a lobectomy should be done, the tissue examined by the pathologist immediately and a report given the surgeon. The appropriate procedure may then be carried out.

After completion of a careful history and physical examination, a roentgenographic examination of the chest and bronchoscopic examination for an indeterminate lesion in a man over the age of 40, exploratory thoracotomy is mandatory and should be accomplished without delay. The passage of time is inimical to the patient's best interest. Observation of the patient for a period of time is extremely unwise. If the lesion remains unchanged, one still cannot rule out the possibility of bronchiogenic carcinoma. If the lesion increases in size or a distant metastasis becomes evident, one has been guilty of loss of valuable time for the patient. The question the surgeon should ask himself in regard to all indeterminate chest lesions is this: Can I honestly tell the patient this is not a carcinoma? If he cannot, the patient should be advised to have an immediate thoracotomy.

EARLY DIAGNOSIS OF BRONCHIOGENIC CARCINOMA

The early diagnosis of bronchiogenic carcinoma is difficult if one demands absolute proof of the presence of this lesion for the diagnosis. However, if one's index of suspicion is maintained at a high level, the early detection of bronchiogenic carcinoma is not impossible. In about two thirds of the patients having this condition, early diagnosis is possible if one keeps in mind the prevalence of this type of cancer, its natural history and its symptomatology. Appropriate studies, including roentgenography, bronchoscopy and exploratory thoracotomy, are indicated to make the diagnosis.

Because of the natural course of bronchiogenic carcinoma, there is an early silent phase in which a lesion can be detected only by routine, periodic roentgenograms of the chest, as suggested by Overholt and Schmidt in 1949.[1] As a result of surveys for tuberculosis, as many as 10 asymptomatic carcinomas per 100,000 roentgenograms have been found. Mass surveys have been extremely valuable in case finding for tuberculosis and have reduced the incidence of far advanced cases by the discovery of minimal cases. In the future it may be possible to do the same for bronchiogenic carcinoma. In the meantime, we can improve our detection of those cases we are seeing every day by making an earlier diagnosis.

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[1] Overholt, R. H., and Schmidt, I. C.: Silent Phase of Cancer of the Lung, J. A. M. A. **141**: 817 (Nov. 19) 1949.

SUMMARY

The over-all salvage rate for bronchiogenic carcinoma remains disappointingly low in spite of advances in its surgical treatment. Pulmonary resection could be applied to only 107, or 30 per cent, of 362 patients having bronchiogenic carcinoma seen by us during the past three and one-half years. The patient, the physician and the natural course of the cancer itself are responsible for the late diagnosis of bronchiogenic carcinoma. A plea for the early detection of this lesion is made, and the symptomatology, the roentgenographic findings and specific methods of diagnosis are reviewed.

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ABSTRACT OF DISCUSSION

Dr. John C. Jones, Los Angeles: That a longer delay exists between the time the patient first consults his physician until the true diagnosis is made than between the time from the initial onset of symptoms until the patient consults his physician in regard to these symptoms is a shocking reality. In Dr. Paulson's series there was an average delay of five months from the onset of symptoms until the patient consulted his physician, and then there was another average delay of six more months after the patient went to his physician before the correct diagnosis was made. I reported a series of patients with carcinoma of the lung four years ago, and I was more encouraged about the outlook of early diagnosis of bronchogenic carcinoma at that time than I am now. In our group of cases, if the patients who are diagnosed by mass roentgenogram surveys are excluded, I believe there is a longer delay from the time the patient consults the physician until a correct diagnosis is made than there used to be five years ago. I tried to analyze these cases, and the only conclusion that I came to is that when there were only the sulfonamides, we physicians had a few drugs to use and the diagnosis was eventually made. Now we have too many drugs. Therefore, we start with the sulfonamides; then the patient is put through the whole gamut of antibiotics and he does not improve. Discouraged, he goes to another physician, who treats him with courses of the various antibiotics all over again. There are just too many different preparations, and the patient is subjected to a lot of therapy and is not exposed to any diagnostic acumen. There is going to be a limit to the technical improvements of pneumonectomy that a surgeon can contribute. The incidence of complications is low. Four years ago I reported a series of pneumonectomies in which the mortality was 4 per cent. The improvement in the results of the treatment of carcinoma of lung must come as the result of early diagnosis and mass roentgenogram surveys. Dr. Paulson stated that 30 per cent of his patients were operable, but half of these were patients in whom he was sure at the time of the operation that he was doing only a palliative procedure. Actually then he was offering a cure to 15 per cent, and not 30 per cent, of the operated patients. I do not believe the surgeon should hesitate, if he cannot find lymph nodes either peripheral or central, to do a so-called lobectomy biopsy. Certainly an older patient with a peripheral lung carcinoma and fibrotic and emphysematous changes may withstand a lobectomy without complication and dyspnea, and furthermore the end result of a cure may in a whole series of patients be just as good as, if not better than a pneumonectomy, which is hazardous in this type of patient. Then too, if it turns out that the patient has a benign lesion, only the lobe has been resected, and the patient has not been incapacitated. He has been given the protection of an earlier and an accurate diagnosis and with no sacrifice. If thoracotomy is done in patients who are hopelessly inoperable, then the physicians who are to care for these patients afterward are going to be discouraged with exploratory thoracotomy. If a patient is hopelessly inoperable, then that patient is not so well off or so comfortable as he was before the procedure. Such indiscriminate practice contributes only to the discouragement of the patient and the physician who treats the patient until the latter dies.

Dr. Donald L. Paulson, Dallas, Tex.: I agree with Dr. Jones about exploratory thoracotomy and obviously hopeless lesions. We are coming to the position more and more that if we are sure that a cancer is of the undifferentiated small cell type, we most usually should not offer surgery to the patient, because our results are poor from the standpoint of resection in that group.

THE HEREDITY OF EPILEPSY AS TOLD BY RELATIVES AND TWINS

William G. Lennox, M.D., Boston

"Can there be marriage and children"? This is one of the most urgent questions propounded by the epileptic and his relatives, and one of the most difficult to answer. Answers given by doctors differ radically. One will deny and the next will affirm the importance of heredity. In giving advice, many forget that the problem refers to a person possessed of not just one transmissible trait, but of many. A condition that argues against marriage and children may be neutralized, or even outweighed, by other conditions that favor marriage. These will be considered after the testimony of relatives has been reviewed.

OPINIONS IN THE PAST

For the most part, doctors and laymen alike have recognized a transmissible quality. Hippocrates called epilepsy a familial disease. Burton's "Anatomy of Melancholy" states that the ancient Scots "instantly gelded" any man with falling sickness and if a woman "were found to be with child, she with her brood were buried alive." The laws (happily moribund) of 14 of our states go one step further—forbidding marriage of the epileptic, and even threatening fine or imprisonment for any who assist.

In the important subject of genetics, man plays second fiddle to the fruit fly. In spite of the importance of the question of heredity of epilepsy to both patients and the public, published data on the subject have, in general, been conflicting or unconvincing. References and background information will be found in certain previous pub-

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From the Department of Neurology, Harvard Medical School, and the Children's Medical Center.

Read before the Section on Nervous and Mental Diseases at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

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lications.[1] At present, I am concerned with evidence garnered from two groups: first, the 20,000 near relatives of approximately 4,000 epileptic patients, and, second, 122 twin pairs affected by seizures.

METHODS OF STUDY

One must first consider the inaccuracies that attend a statistical study of the symptom complex called epilepsy. There are uncertainties of definition and of differential diagnosis. In addition, the family and other history must be obtained about an illness which many persons consider a deep disgrace. In order to study the relative influence of genetic and acquired factors in epilepsy, one must separate patients into those with and those without evidence of brain damage that existed prior to the first seizure. Evidence includes the past history, the pattern of the convulsive phenomena, neurological examination and the findings in certain tests, such as the pneumoencephalographic and the electroencephalographic. Decision is complicated by the fact that the observed brain damage may be a result, rather than a cause, of the epilepsy. Because evidence both of a brain lesion and of a significant family history may be hidden, the assignment of cause or causes in many cases must be deferred. Some writers employ a name idiopathic or cryptogenic, which sounds meaningful but says only, "I don't know." The terms "cause unassigned" seems preferable. Again, the forces of nature and nurture (or heredity and environment) are not fixed and are not mutually exclusive. Thus, the seizures of many patients will be the result of both predisposition and brain injury. Furthermore, the predisposition will be the minor factor in one patient and the major factor in another. Thus, among 2,053 patients seen in the office (three-fourths) or in the clinic (one-fourth), the proportionate representation of causes was as follows: a family history of epilepsy or migraine, 43 per cent; evidence of cerebral damage that antedated the first seizure, 27 per cent (with overlapping of these two conditions in 11 per cent) and cause as yet unassigned, 41 per cent. The present report is an effort to reduce the size of this large, unassigned (idiopathic) group.

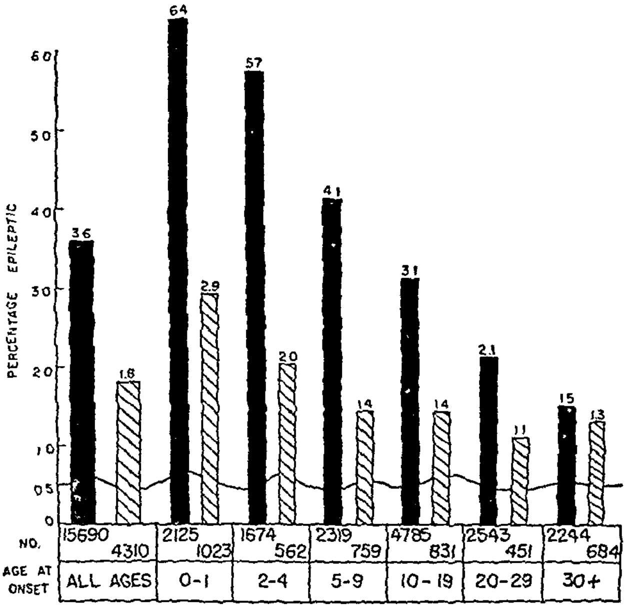

Fig. 1.—Incidence of epilepsy among 20,000 near relatives with reference to antecedent brain damage and age at onset of the seizures. The number of relatives and the age at the time of the first seizure are indicated at the bottom of the chart. The scale at the left gives the percentage of relatives who have had seizures. *The solid columns represent the patients* without antecedent brain damage, and the hatched columns, those with evidence of such damage. The wavy line near the bottom represents the portion of draftees (0.515 per cent) rejected because of epilepsy during the World War I. The waviness of the line suggests the possible inaccuracy of this figure.

DATA FROM FAMILY TREES

My colleagues and I have studied the family histories of 4,231 patients seen in the office or the clinic. Data for approximately one third of these were supplied by certain members of the American Neurological Association. Because the symptom of seizures is scattered widely throughout the population, every family tree, if examined twig by twig, would display one or more instances of this disorder. In addition to counting the number of affected families, we determined the number of affected persons in the population that immediately surrounded the patient—his parents, siblings and children. Even in this compact group, diagnoses are often in doubt. In these tabulations, a person subject to seizures that were not considered syncope, hysteria, carotid sinus syndrome or the result of defective metabolism was counted as epileptic without regard to precipitating conditions, such as fever, excessive use of alcohol or extreme emotion. The question whether one or two seizures are necessary for a diagnosis was compromised by accepting one seizure in one-half and two seizures in the remaining half of the total group.

Epileptic patients were divided into two groups—those with and those without evidence of a neuropathologic condition that antedated the first seizure. Of these patients, 22.9 per cent gave evidence of antecedent gross brain lesions (with or without a significant family history) and were assigned to the group having "symptomatic," or acquired, epilepsy. This left 77.1 per cent in the group without prior damage to the brain, composed of the patients with "essential" (genetic) epilepsy and the patients with unassigned cause. The results are displayed in the two left-hand bars of figure 1.

The incidence of epilepsy among all near relatives was 3.2 per cent. In the group without brain damage it with 3.6 per cent. For the group with brain damage, the incidence was 1.8 per cent. Thus, judging from the number of epileptic relatives, the genetic influence in the group with symptomatic epilepsy was one-half that present in the group with essential epilepsy.

For data regarding the incidence of a condition to have meaning, there must be comparison with the distribution of this condition throughout the general population. In the two world wars, approximately 0.5 per cent (1 in 200) of draftees were excluded because of epilepsy.[2] Persons confined to institutions and children, with their high seizure rate, were not involved—moreover, many men failed to report seizures that might be quiescent, and the screening of others was extremely coarse. These conditions would tend to depress the incidence below its true general level. The wavy line in figure 1 expresses the uncertainty regarding the accuracy of the draft values. In the group of patients with brain intact, the incidence is 7.2 times that reported in the draft. In the group with damage to the brain, it is 3.6 times as great. If the two groups were mutually exclusive and epilepsy in the group with brain damage were due solely to the acquired condition, then affected relatives of this group should not exceed the number in the general population. A threefold increase simply reflects the fact that in many patients both genetic and acquired conditions are at work. The physician whose patient has onset of epilepsy after a head injury cannot say that the chances of epileptic offsprings are nil, nor can the physician who sees a family tree bedecked with epilepsy or migraine close his mind to the possibility of brain tumor.

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[1] Lennox, W. G.: Gains Against Epilepsy, J. A. M. A. **120:** 449 (Oct. 10) 1942; Marriage and Children for Epileptics, Human Fertil. **10:** 97, 1945; The Genetics of Epilepsy, Am. J. Psychiat. **103:** 457, 1947.

[2] Ireland, M. W.; Love, A. G., and Davenport, C. B.: *Defects Found* in Drafted Men: Statistical Information Compiled from the Draft Records, War Department, 1920. Causes of Rejection and Incidence of Defects: Local Board Examinations of Selective Service Registrants in Peacetime; An Analysis of Reports of Physical Examination from 21 Selected States, Bulletin 2, National Headquarters, Selective Service System, Washington, D. C., Medical Statistics, Aug. 1, 1943.

Age at Onset.—Conditions that are predominantly genetic tend to manifest themselves early in life. If persons whose seizures started in early childhood have an unusually large number of epileptic relatives, this fact strengthens the evidence for heredity. This number should be disproportionately large also for the group without prior brain damage. The slender columns of figure 1 display the results of tabulations designed to test these points. The age at onset was taken as that at the first seizure, even if this occurred in the first months of life and recurrent attacks did not start until years later. In the group with undamaged brain, if epilepsy began in infancy, 6.4 per cent of relatives were affected, against only one-fourth that number (1.5 per cent) if epilepsy started after the age of 30. Corresponding percentages for the group with brain damage are 2.9 and 1.3 per cent, respectively. The fact that this symptomatic group shows some downward progression as the age at onset increases points again to a genetic influence at work, even in the presence of an apparently sufficient acquired cause. (The objection might be raised that the younger the patient, the greater the parental history of seizures, since parents themselves might be the informants. On the other hand, the older the patient, the more time there would be for epilepsy to have developed in siblings, and perhaps in children. Moreover, the factor of adequate information should affect the essential and the symptomatic group equally.)

EVIDENCE GAINED FROM TWINS

The statistical data already presented suffer from the uncertain mixture of genetic and acquired elements. One-egg (monozygotic, similar, identical) twins offer the great advantage that the element of heredity is the same for the two persons (the co-twins) that compose the pair. Hence, characteristics that are hereditary (such as the color of hair and eyes, the height and weight, the blood type and the electroencephalographic pattern [3]) are the same. Consequently, to the degree that seizures or the tendency to them is genetically derived, both co-twins of a one-egg pair will be epileptic or have that tendency. On the other hand, if but one has seizures and these followed some acquired lesion of the brain, the epilepsy of that person presumably is acquired. The family histories of the twins of this study support this presumption. Of the 167 near relatives of one-egg twins without evidence of brain damage prior to the onset of seizures, 6.6 per cent were epileptic, against none of the 103 relatives of the one-egg twins with evidence of a prior pathologic state.

Two studies dealing with series of epileptic twins have been published, the one by Rosanoff, Handy and Rosanoff [4] and the other by Conrad.[5] Although the series were of satisfying size, namely, 107 and 157 pairs of twins respectively, the cases apparently were gathered by means of reports from institutions, without personal examination, and, of course, the studies did not include the use of the electroencephalograph.

The series of 122 pairs of twins here reported has been collected during the past 15 years with the assistance of associates, especially Dr. and Mrs. F. A. Gibbs. Patients were encountered in clinic or in private practice, many of them through referring physicians in various sections of the country. Of the 122 sets of twins, 13 were not examined personally; of four others, only one co-twin was seen, and electroencephalograms of six pairs were not obtained. Two of the twin pairs had been reported previously by others.[6] The questions of zygosity, often a difficult one, was decided through comparison of the various physical hereditary traits, details of which appear in preceding communications.[7]

Sixty-nine pairs were judged to be derived from one ovum and 53 pairs from two ova. The difficulty of decision is often increased because one set of twins may be more nearly identical than another set, and, more important, an acquired brain injury, derived perhaps from the convulsions themselves, may alter characteristics used in judging identity, such as size, the intelligence of the person and his electroencephalogram. In young children, confusion may arise because the first seizure may have been a febrile convulsion which, though generalized, was followed by hemiparesis and later by focal convulsions.

The following case is illustrative: Bernice and Helen, now 25 years of age, each had a few convulsions at the age of 2 or 3 years—whether febrile or not is unknown. Helen has had none since; she has an intelligence quotient of 135, shows a normal electroencephalogram and has professional training. One of Bernice's babyhood convulsions was followed by hemiparesis, which cleared after several months. Focal seizures have continued to occur and now number several thousand. Her intelligence quotient is 109. Because of the seizures and destructive behavior, directed especially toward her more fortunate twin sister, she has for years been confined to a mental hospital.

Extreme ages of twins were 6 months and 42 years. The percentage of females, especially among the members who were epileptic, was unusually high. The distribution of twins with respect to zygosity, presence or absence of brain damage and chronicity of seizures is shown in the accompanying table. "Transient epilepsy" refers to patients with febrile convulsions only, or not more than two nonfebrile episodes.

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[3] Lennox, W. G.: The Brain Wave Pattern: An Hereditary Trait, J. Hered. **36**:233, 1945.

[4] Rosanoff, A. J.; Handy, L. M., and Rosanoff, I. A.: Etiology of Epilepsy, with Special Reference to Its Occurrence in Twins, Arch. Neurol. & Psychiat. **31**:1165 (June) 1934.

[5] Conrad, K.: Die Bedeutung der Erbanlage bei der Epilepsie, Deutsche Ztschr. Nervenh. **139**:76, 1936.

[6] Fabing, H.: Tuberous Sclerosis with Epilepsy (Epiloia) in Identical Twins, Brain **57**:227, 1934. Freeman, W.: Symptomatic Epilepsy in One of Identical Twins, J. Neurol. & Psychopath. **15**:210-218, 1935.

[7] Lennox, W. G.; Gibbs, E. L., and Gibbs, F. A.: Inheritance of Cerebral Dysrhythmia and Epilepsy, Arch. Neurol. & Psychiat. **44**:1155 (Dec.) 1940. Lennox, W. G.: Sixty-Six Twin Pairs Affected by Seizures, in A. Research Nerv. & Ment. Dis., Proc., Epilepsy, Williams & Wilkins Company, Baltimore, chap. 2, 1947.

CONCORDANCE OF EPILEPSY

The percentages in the last column of the table are presented in figure 2. These results with respect to concordance are in fair agreement with those of Conrad.[5] Corresponding figures, with Conrad's first, are as follows: one-egg twins: brain intact, 86 and 84 per cent; brain damaged, 12 and 17 per cent; two-egg twins: brain intact, 4 and 10 per cent; brain damaged, 0 and 8 per cent. Twins having only febrile convulsions account for the higher concordance in our two-egg series.

Inspection of these results emphasizes what clinicians have long recognized—that heredity and brain abnormality are both important. However, the present data indicate greater spread between all one-egg and all two-egg twins (52 percentage points) than between all uninjured and all injured twins (36 percentage points). This suggests that heredity may be of somewhat greater influence than brain injury in the etiology of seizures.

Cases of Discordance.—Of particular interest are those one-egg twins who have no history of acquired brain damage and yet only one of the twins is epileptic. In the group of 45 one-egg twins, seven such cases were encountered (16 per cent). Thumb nail sketches of them may be given. The family and past histories were noncontributory unless stated otherwise.

Distribution of Seizures Among One Hundred and Twenty-Two Twin Pairs with Reference to Zygosity and Antecedent Pathology of Twins and Chronicity of Seizures

One- or Two-Egg Twins	Antecedent Brain Pathology	No. of Twins	Both with Chronic Seizures No.	Both with Chronic Seizures %	One with Chronic, One with Transient, Seizures No.	One with Chronic, One with Transient, Seizures %	Both with Transient Seizures No.	Both with Transient Seizures %	One with Chronic Epilepsy, One Normal No.	One with Chronic Epilepsy, One Normal %	Both Twins Affected No.	Both Twins Affected %
One-egg	—	45	21	47	9	20	8	18	7	15	38	84
	+	24	1	4	3	13	0	0	20*	83	4	17
Two-egg	—	40	1	2.5	1	2.5	2	5	36*	90	4	10
	+	13	0	0	1	8	0	0	12	92	1	8
All one-egg		69	22	32	12	17	8	12	27	39	42	61
All two-egg		53	1	2	2	4	2	4	48	90	5	9
All uninjured		85	22	26	10	12	10	12	43	50	42	50
All injured		37	1	3	4	11	0	0	32	86	5	14
All twins		122	23	19	14	12	10	8	75	61	47	38

* In two pairs, one with transient seizures and one normal.

Ernest and Salvatore C. are 12 years of age. In the past two years Ernest has had three convulsions without known precipitating circumstances. His electroencephalogram is normal; that of his brother is mildly slow because of the greater build-up during overventilation. Each has an intelligence quotient of 68.

Mrs. B. and Mrs. W. are 23 years of age. Mrs. B., during the past four years, has had approximately 15 convulsions, without known precipitant. A paternal grandfather and uncle had convulsions. The electroencephalogram of each co-twin is a bit fast and contains solitary spike-wave complexes, these being more abundant in Mrs. B.'s record.

Robert and Richard R. are 11½ years of age. In the past 18 months Robert has had one convulsion and three psychomotor seizures. The electroencephalogram of each twin is a bit slow. Robert's intelligence quotient exceeds Richard's by 5 points.

John and Joseph R. are 22 years of age. In the past five years John has had approximately 75 convulsions. The electroencephalograms of both are mildly slow without seizure discharges, John's being a bit the slower. John's intelligence quotient is 4 points below Joseph's.

Edward and Peter L., aged 10 years, have a father and maternal grandmother who experienced convulsions as infants. Edward has had approximately 20 convulsions in the past nine years, the first coming within an hour after a trivial fall. The electroencephalogram of each is a bit slow, the build-up with Edward being greater than that of his brother. Edward's verbal intelligence quotient is 182, being 3 points higher than Peter's. Interesting details will be reported by the patients' neurologist, Dr. William Caveness.

Joseph and James F. are 37 years of age. Joseph, during the past 19 years, has had approximately 50 grand mal and 100 psychomotor seizures. As a boy, he was knocked unconscious by a blow on the head. He has had a hysterical hemiparesis. Both co-twins are neurotic and subject to migraine. During most of the 10 years that the patient has been observed, the diagnosis has been in doubt because of the nebulous description of his symptoms. However, since confinement in a state prison, he has had a number of generalized convulsions, as well as psychotic outbursts, which are probably psychomotor seizures. The electroencephalograms of both twins were considered normal until a sleep recording of Joseph showed slow spikes in the temporal areas. His intelligence quotient, 120, was 2 points above James's.

The cases of Karen and Carol Y. are especially interesting. A maternal cousin has epilepsy. Karen, now 12 years old, began at the age of 6 to have the form of petit mal we term petit absence. Attacks recurred dozens of times daily and were recorded on the electroencephalogram. With persistent use of trimethadione (tridione®) the petit absence of Karen disappeared four years ago, and her electroencephalogram, even in sleep, is normal and free of spike and wave complexes. Carol's electroencephalogram was persistently and (for us) provokingly normal until the impetus of sleep evoked the telltale spike-wave complexes of unerupted epilepsy.

Failure of 100 per cent concordance in these one-egg twins with intact brain may find explanation in one of two ways. Four of the seven pairs of twins are 12 years of age or younger, and the normal co-twin may yet experience seizures, or the epileptic co-twin may have experienced some alteration of body or brain metabolism or some neuropathologic lesion without neurologic signs which precipitated seizures. Mystery surrounds the externalization of cerebral dysrhythmia, as in the case of Alice and Arlene D., illustrated in figure 5.

Also requiring explanation are those cases in which both members of two-egg twins have had seizures. Five of the 53 two-egg twin pairs (9 per cent) were in this category.

Robert and Barbara J. are aged 20. The mother has a history of migraine and of possible seizures in youth. Robert has had persistent convulsions and psychomotor seizures for 15 years. In the past two years Barbara has had occasional vaguely described automatisms, and her electroencephalogram displays temporal spiking.

Anthony and Patricia D., aged 7 years, had a maternal aunt who had convulsions as a child. Each twin has had two febrile convulsions, and Anthony, a few petit absences.

Joan and Phillip G., aged 2 years, have had, respectively, 15 and 16 febrile convulsions.

Pauline and Paul D., aged 3 years, have had, respectively, 10 and one febrile convulsions. The mother had febrile convulsions as a child; the father had convulsions in childhood and now has migraine.

John and Rose Marie F., 3 years of age, are the twin children of a woman who is one of identical twins, both epileptic, reported many years ago by Fabing.[6] John and Rose were both injured at birth. John had continued convulsions and was sent to an institution. Rose Marie had them only during the first week of life and has been adopted.

The incidence of 9 per cent among the co-twins is more than twice the incidence of epilepsy (3.4 per cent) among the 8,006 siblings of patients of our series. In three of the five cases, the convulsions that occurred in both co-twins were febrile. Often fugitive, these may not have as great significance as convulsions that occur without this hair trigger means of precipitation.

CONCORDANCE OF TYPES OF SEIZURES

Does heredity in epilepsy involve only the fact of having a seizure of some sort, or does it go a step further and decree what the pattern of abnormal display shall be? If specific patterns are not transmitted, then distribution of the principal seizure types—grand mal, petit mal and psychomotor—should be scattered among one-egg twins much as they are among pairs of unrelated persons of the same age. If, on the other hand, a person's constitution determines the composition of the seizure pattern, then one-egg twins whose brains have not been altered by some acquired condition should display seizures that are similar. We compared the likeness of seizure patterns in uninjured one-egg twins with the pattern in 100 pairs of patients picked at random from the files. The concordance was as follows: Of 19 one-egg twins affected with but one type, both co-twins had a history of either grand mal or petit mal in 100 per cent (random selection, 38 per cent). In pairs with a history of both grand mal and petit mal in one of the co-twins, the concordance was 70 per cent (random selection, 29 per cent). In the six pairs in which there was a history of grand mal and psychomotor seizures, the concordance was 17 per cent (random selection, 16 per cent). For all these specified seizures or combination of seizures there was concordance in 75 per cent (random selection, 31 per cent). The random sampling did not compare persons of the same age. However, the degree of concordance of types of seizures among the twins would seem to overbalance this age factor.

Concordance was noted also for the subgroups of the petit mal triad. If one co-twin experienced petite absence, myoclonic jerks or drop seizures, the other did also. In one pair, the concordance extended to coincidence. In nine of 10 episodes of falling in a faintlike, astatic seizure, the falls of both girls occurred within a minute of time—on two occasions when they were not in the same room. Of 38 one-egg twins without injury of the brain, the epilepsy of both began within a 12 month period in 22, or 58 per cent.

The conclusion that heredity has much to do with the physical phenomena of the fit is inescapable.

CONCORDANCE OF ELECTROENCEPHALOGRAPHIC PATTERNS

A further, and even more searching, question is whether concordance extends to the type of dysrhythmia. This question probes the possibility of discovering a predisposition to seizures. In their earliest report on electroencephalography, Gibbs, Davis and Lennox[8] depicted bursts of high voltage waves unattended by observable clinical phenomena. These they termed "larval" seizures. Such unseen malactivities, like a planet whose position is plotted by astronomers before it is seen, suggests that an abnormal electrical activity of the brain underlies epilepsy, and gross abnormalities in a healthy person with intact brain might represent a transmissible larval epilepsy or predisposition to seizures.

The electroencephalogram represents minutes of time, against the years of a person's past history of seizures. Hence, observation of paroxysmal phenomena on the electroencephalographic recording may depend on chance, on successive tests or on use of methods of activation, such as hyperpnea, sleep or injection of pentylenetetrazole (metrazol®). Thus, Carol Y., mentioned previously, whose identical twin sister had a profusion of petit absence and of dart-dome discharges, had neither of these on routine testing until an electroencephalogram during sleep disclosed the specific dart-dome discharges.

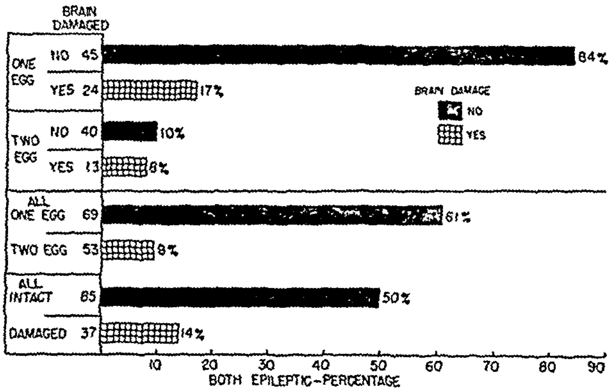

Fig. 2.—Percentage of twin pairs in which both co-twins have a history of seizures. The length of the bars represents the values expressed in the *last column of figure 1. Black* bars are for twins without evidence of brain damage prior to the onset of seizures, and hatched bars are for those with such evidence. Percentage figures are at the ends of the bars, and figures for the number of twin pairs are at the base.

Electroencephalograms were grouped using the classification of the Gibbses.[9] The results of this tabulation are recorded in figure 3. The tracings of some twins were normal, but in the one-egg group 61 pairs displayed some abnormality in at least one of the co-twins. A particular abnormality occurred in both co-twins in 37 (61 per cent) of the 61 one-egg pairs. The corresponding figure for the 40 two-egg twins was only 7 per cent. The agreement was greatest (74 per cent) when there was no high voltage discharge, but simply a dominant rhythm, which was either fast or slow. Among two-egg twins the corresponding concordance was 27 per cent. In the one-egg group, the concordance of the 3 per second spike-wave formation was 66 per cent, that of high voltage slow waves or of spikes, 37 per cent, and that of slow spike-wave complexes, 25 per cent. Of the last three types, none of the two-egg twins displayed concordance of brain wave patterns. The relatively low concordance of the slow spike-wave discharge is due to its association with acquired brain lesions. When the twins with brain damage were eliminated from the calculation, the total concordance of all electroencephalographic interpretations was 70 per cent for the one-egg and 10 per cent for the two-egg twins.

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[8] Gibbs, F. A.; Davis, H., and Lennox, W. G.: The Electroencephalogram in Epilepsy and in Conditions of Impaired Consciousness, Arch. Neurol. & Psychiat. 34: 1133 (Dec.) 1935.

[9] Gibbs, F. A.; Gibbs, E. L., and Lennox, W. G.: Electroencephalographic Classification of Epileptic Patients and Normal Control Subjects, Arch. Neurol. & Psychiat. 50: 111 (Aug.) 1943.

Details of the rhythmic dart-dome sequences that appear in the electroencephalographic record during a petit absence vary from patient to patient. In the recordings of identical twins, details of the dart-dome formation are much alike.

In figure 4 are compared short sections of the tracings of Constance and Kathryn McN., 11 year old girls who have had frequent daily petit absences for the past three years. In spite of the similarity of their tracings during a seizure, trimethadione [10] has been effective in controlling the seizures of only one of the girls.

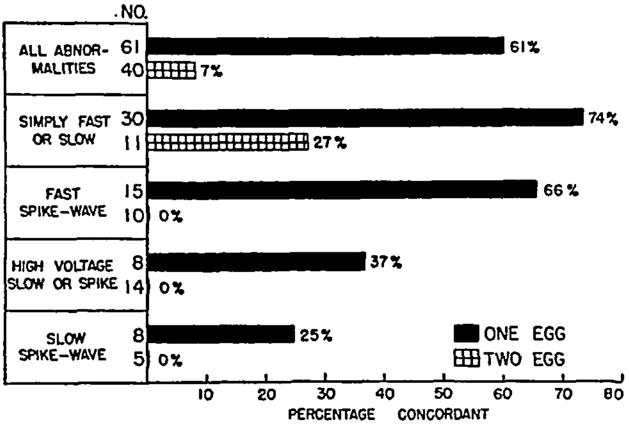

Fig. 3.—Concordance of electroencephalographic patterns in twin pairs. The solid bars represent one-egg, and the hatched bars, two-egg, twins. Percentages in which both co-twins have the same primary disturbance of the brain waves are at the end of the bars. Numbers at the base show the number of twin pairs in the group. The abscissa gives the percentage scale for concordant records. Only the outstanding abnormality is used in classification.

This striking likeness of brain wave abnormalities in persons with the same heredity adds weight to our earlier suggestion [7] that brain wave dysrhythmia might be the observable expression of the unseen, but long-talked of, anlage, or predisposition to seizures. However, the greatest concordance in identical twins and in the parents of epileptic patients is a mere alteration of background frequency. This clue becomes lost in the crowd of mere fast or slow waves of normal voltage in the general population—a 10 to 20 per cent incidence.

The following case illustrates the thinness of the line between symptomatic and asymptomatic cerebral dysrhythmia. Alice and Arlene D. are 10 years of age and are classed as one-egg twins without brain damage. During pregnancy the mother had eclampsia and experienced one convulsion just after the induced delivery of the twins. She also has a history of migraine. Alice, at the age of 3 years, received a blow on the head which rendered her unconscious for half an hour. At the age of 8, she began to have brief periods of unconsciousness. Later she had two mild convulsions. On two occasions, Alice's electroencephalographic record contained frequent discharges consisting of one or two spike-wave formations, occurring for the most part in the occipital and parietal leads but occasionally extending through all leads. She also had continuous 3 per second spike-wave discharges, persisting for approximately 10 seconds, during a petit absence. Seizures had never been observed in Arlene; yet her electroencephalogram contained rather more spike-wave discharges than did the record of Alice. On two occasions, when performing hypernea, she had a continuous spike-wave discharge lasting five seconds, accompanied with rhythmic blinking of the eyelids and failure to respond. Illustrative samples of the resting records appear in figure 5. Therefore, Arlene is electrically as epileptic as Alice. The division between symptomatic and asymptomatic dysrhythmia in this person was very thin, and was blown away by a few deep breaths. In Alice there was some externalizing agent which made her epileptic, possibly the blow on the head at the age of 3 years. However, the frequency of spike-wave discharges in Arlene, with the multiplicity of spikes, makes it

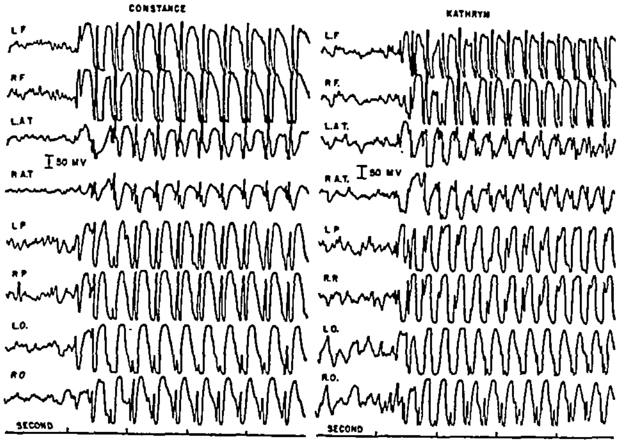

Fig. 4.—Samples of the electroencephalographic tracings of identical twins, Constance and Kathryn McN., aged 11 at the onset of a petit absence. There was no family or personal history of epilepsy. The letters at the left of the tracings indicate placement of electrodes, namely, left and right frontal, left and right anterior temporal, left and right parietal and left and right occipital leads. The signal in the middle indicates the deflection made by 50 microvolts. Time, in seconds, appears at the bottom. Reference leads were on the ears. The samples illustrate the likeness of the seizure pattern, even in some of the finer details, such as the tendency of spikes in the anterior temporal leads to surmount the waves and the relatively short spikes in the occipital leads. In the parietal leads, however, the placement of spikes is different.

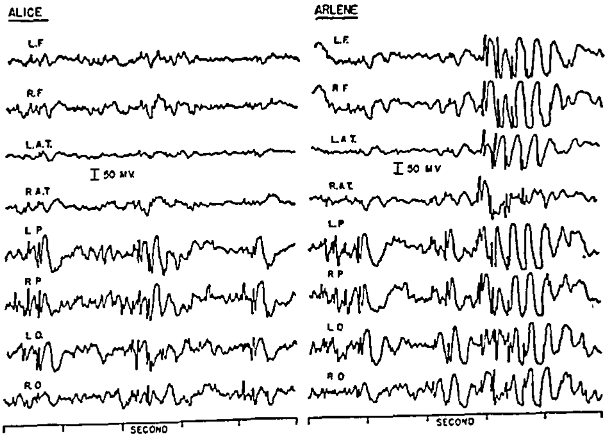

Fig. 5.—Samples of the tracings of Alice and Arlene D., one-egg 10 year old twin girls, taken in a period when free of clinically detectable petit absence. The symbols are the same as in figure 4. Alice (left hand panel) had had psychomotor equivalents daily for the past 18 months. Arlene (right hand panel) had had none except once, when performing overventilation.

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10. Lennox, W. G.: The Petit Mal Epilepsies and Their Treatment with Tridione, J. A. M. A. **129:** 1069-1073 (Dec. 15) 1945.

probable that she likewise will have both petit mal and grand mal. In addition, the chance of epileptic offspring is equally great for the two girls.

In spite of the evidence that abnormal, as well as normal, patterns of electrical activity are transmitted, as shown by evidence of one-egg twins, parents of epileptic children with dysrhythmia may not show abnormalities of their electroencephalogram, or these may be of a minor nature—merely some slowness or fastness of the dominant rhythm.[1] This may be due in part to the fact that brain activity is a fluid trait and abnormalities of rhythm tend to disappear as the person grows older. This is especially true of the rhythm most characteristic of epilepsy, namely, the fast spike-wave formation. The slow form, resting on a pathologic basis, is more resistive to the healing influences of age and medicine.

HEREDITY OF MENTALITY

To the epileptic, maintenance of normal mentality is as important as control of seizures. Therefore, this matter deserves brief consideration. Twin studies have shown that the difference in the intelligence quotients of one-egg co-twins is small, much smaller than the spread between two-egg co-twins. In our own series of nonepileptic twins,[11] the average spread for 47 identical twins was 6 points and for 16 nonidentical twins, 10 points. Psychometric tests were given to 87 of the twin pairs of this study. The average spread in groups of twins was as follows:

Considering the twins without gross damage first, for the 17 one-egg twin pairs, both of whom had chronic epilepsy, the average spread was 7 points. In another group of 17 one-egg twin pairs in whom the epilepsy was chronic in one co-twin and only transient in the other, the average intelligence quotient for the severely affected twin and that for the lightly affected twin were exactly the same, 99. For 28 two-egg twins one of whom had chronic and the other transient epilepsy, the average intelligence quotient for the severely affected co-twins was 7 points lower than that for the lightly affected ones.

In contrast are those twins in whom one co-twin had at some time suffered gross damage of the brain with resulting chronic epilepsy and the other co-twin had no brain damage and only transient, or possibly no, seizures. For the 18 one-egg twin pairs, the average intelligence quotient of the brain injured with chronic epilepsy was 77, as against 104 for his relatively unaffected co-twin, a spread of 27 points. In the corresponding group of two-egg twins, numbering only seven, the average intelligence quotient of the chronic epileptic was 62, and that of his more fortunate co-twin was 93, a spread of 30 points. We may conclude that with mentality, as with convulsions, both heredity and acquired brain damage play important roles. The natural mental endowment of the patient is most important, and any gross anatomical impairment of the brain, especially if it occurs early, is of great influence. However, contrary to common medical opinion, the epileptic seizures themselves play a distinctly secondary role. This observation provides the clinician with a substantial basis for optimism when he talks with a patient (or parents of a patient) whose natural endowment is good and whose brain is not grossly damaged. A good brain can "take" a severe beating from epilepsy.

CLINICAL APPLICATIONS

A genetic factor in epilepsy is no longer in question, but only its nature and extent. As to its nature, the data from twins support the thesis that the fundamental transport is not of epilepsy per se, but of a predisposition to epilepsy. This is oftentimes demonstrable as a cerebral dysrhythmia. Possession of a predisposition to an illness is genetically the same as having that illness. As to extent, there is no reason to pillory epilepsy as a disease in which a predisposition is unduly conspicuous. As Galen remarked, "Always this is to be remembered—that no cause can be efficient without an aptitude of the body." Statistical studies which would include the use of twins would doubtless demonstrate that a transmitted "weakness," or predisposition, is greater for many common medical conditions than for epilepsy. On the basis of family histories, the hereditary factor in epilepsy appears to be approximately the same as that in diabetes, one-half that in obesity and one-eighth that in migraine, but no state has as yet forbidden migrainous persons to marry. Unjustified discrimination in this case is born of fear. The success of present day therapy of seizures should reduce both fear and discrimination.

The matter of extent applies also to individuals. Our 20,000 relatives and 122 twins told us only their total average experience. However, the patient wants of his doctor an answer to his own individual perplexity. "Can *I* get married and have children?" The child of the nonexistent Mr. and Mrs. Average would have a 30:1 chance of remaining free from seizures, whereas the chances might be 10:1 for Mr. Riley or 100:1 for Mrs. Levi, both of them real persons. Conditions that alter the chances have been stated elsewhere.[12] Briefly, those that minimize the likelihood of a epileptic child are a family history devoid of epilepsy or migraine for the spouse, as well as for the patient, and minimal abnormality of their electroencephalograms; some acquired condition that is at least partially responsible for seizures; late onset of the illness, and a normal mental endowment. Other modifying conditions may emerge as the data at hand are subjected to further analysis.

CONDITIONS THAT FAVOR MARRIAGE

As suggested at the beginning, persons are "carriers" of not one, but a great many, qualities. These transmitted traits determine, or help to determine, not only physical structure and physiological function of the body, but also the even more important characteristics of intelligence, personality and social consciousness. A person's intellectual and social assets may outweigh his physical liabilities. Hence, the physician must view the prospective parents (when one is epileptic) and ask himself, "Are the transmissible traits of mind, heart and body of such quality that reproduction is justifiable or perhaps advisable?" Some prospective parents should be discouraged; some encouraged. Unfortunately, persons who should be encouraged are the ones most alive to their social responsibilities and most likely (unless advised otherwise) to forego parenthood.

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[11] Lennox, W. G., and Collins, A. L.: Intelligence of Normal and Epileptic Twins, Am. J. Psychiat. **101**: 764, 1945.

[12] Footnotes 1 to 11. Lennox, W. G.: Science and Seizures, New York, Harper & Brothers, 1946.

CONCLUSIONS

A history of seizures was obtained for 3.2 per cent of the 20,000 near relatives of 4,231 epileptic patients. The incidence was 3.6 per cent if evidence of brain damage prior to the patient's first seizure was lacking, and 1.8 per cent if such evidence was present. These percentages are, respectively, seven and 3.5 times the incidence of epilepsy among draftees for the United States Army.

As additional evidence of a genetic factor, in the group with undamaged brain (essential epilepsy) the incidence of epilepsy among relatives decreased progressively with a later onset of seizures (7.6 per cent if onset was in infancy; 1.5 per cent if it was after the age of 30). Corresponding incidences for the group with brain damage (symptomatic epilepsy) were 2.9 and 1.3 per cent.

The relative influences of heredity, brain damage and chronicity of seizures were studied in a group of 122 twin pairs affected with seizures. In twin pairs without prior brain damage, both co-twins were epileptic in 84 per cent of the one-egg and in 10 per cent of the two-egg twins. In pairs with brain damage, the corresponding incidences were 17 and 8 per cent.

In one-egg twins, concordance was usual not only with respect to seizures, but also with respect to the type of seizure and to the electroencephalographic pattern.

Intelligence quotients were determined for 87 twin pairs. The person's mental endowment was of most importance in the maintenance of a good intelligence. Acquired brain damage was a severe depressant; the reputed bad effect of repeated seizures was not in evidence.

A transmitted predisposition to seizures and brain damage are each (or both) important factors in the origin of a person's epilepsy. A constitutional cerebral dysrhythmia may, among other things, be the visual representation of a predisposition to seizures.

The genetic factor in epilepsy is probably no greater than in it is many other common diseases. The epileptic is unfairly pillorized in public opinion and in law. Assets that are transmissible, such as sound vital organs, good intelligence, personality and social responsibility, may outweigh the liability of a tendency to seizures. Hence, advice regarding marriage and children must be individualized.

ABSTRACT OF DISCUSSION

Dr. Knox H. Finley, San Francisco: This paper leaves little room for argument, for Dr. Lennox has remained conscientious to the facts uncovered by his many years of study on this problem. Throughout the paper, we recognize a constant and unprejudiced awareness of the epileptic problem from all angles. He has established that in the great majority of epileptic patients one is not dealing with the dichotomy of heredity versus environment. In the words of Dr. Stanley Cobb, in his monograph on the "Foundations of Neuropsychiatry," "The idea of 'versus' is wrong. Inborn behavior (healthy or otherwise) is there to start with; its substratum is carried by the genes, but the forces of maturation and the environment work with it to develop normal (or abnormal) behavior." Dr. Lennox' observations and conclusions not only are illuminating to the neurologist but open the door to the psychiatrist to broaden his perspective in not taking for granted or forgetting the forces of the genes or heredity, in addition to the equally important environmental influences, both physical and situational. The term "psychomotor," a term about which many of us are not happy, recognizes, nevertheless, the close relation of psychiatry to the epileptic problem. This is a further score against the dichotomy of medical neurology and psychiatry. In his comment on the concordance of types of seizures in one-egg twins, he gives the percentages of grand mal and petit mal seizures in co-twins as 70 per cent, psychomotor seizures in one co-twin occurring in only 17 per cent of one-egg twins. I should appreciate any comments he would have as to the significance of this.

Dr. Robert B. Aird, San Francisco: One aspect of this subject deserves some emphasis. When we speak of epilepsy as being inheritable, I believe we should define exactly what we mean. The high incidence of epilepsy and similar brain wave patterns in one-egg twins, found by Dr. Lennox, strongly suggests that the type of cerebral tissue and its pattern of functioning (that is, its physiology and biochemistry) are inheritable characteristics. This means that if one of a pair of one-egg twins has shown a susceptibility to convulsions, there is an excellent likelihood that the other possesses a similar tendency. Without intention of contradicting Dr. Lennox' findings, I believe we should stress that it is the type of tissue and its unstable pattern of functioning that is inheritable. One inherits, not spells themselves, but, rather, a susceptibility to them, as determined by the lack of physiological and biochemical homeostasis of the inherited cerebral tissue. The importance of this distinction lies in our attitude toward convulsive disorders and our approach to their therapy. We should not draw the conclusion, from Dr. Lennox' report, that epilepsy is inheritable, and let it go at that. When Dr. Lennox states that an abnormal electrical activity of the brain underlies epilepsy, or that epilepsy is a paroxysmal cerebral dysrhythmia, one might be so tempted. The point I am trying to make is that epilepsy is, fundamentally, a physiological and biochemical phenomenon and that the associated brain wave patterns and clinical spells are merely manifestations of the underlying abnormality. There is a tendency, in speaking of epilepsy as inheritable, to think of the physiology and biochemistry of the brain as fixed, and to forget such mechanisms as the patient's water and acid-base balances in the practical therapy of convulsive disorders. Given a susceptible background, convulsions may be induced by many acquired and variable factors, such as cerebral damage and certain shifts of physiologic and biochemical factors. Since such factors explain why patients have spells at one time and not another, and since they can be controlled in some measure, it is of considerable importance that we set about to regulate them. Let us not say, therefore, that epilepsy is inheritable but, rather, emphasize that the type of cerebral tissue, with its instability of functioning, is the characteristic which is inherited.

Dr. William G. Lennox, Boston: Dr. Finley's question about psychomotor seizures is, I believe, readily answered. Not only psychomotor seizures, but the slow spike-wave formation, which is found so often in children, carries a low concordance incidence; i.e., occurrence in both co-twins is relatively infrequent. This may be explained by the fact that both psychomotor seizures and the slow spike-wave electroencephalogram are usually based on some antecedent brain damage. A related question is this: If a hereditary factor is important, why do only 84 per cent of identical co-twins without evidence of brain damage have epilepsy? Probably there are many acquired abnormalities of the brain which one cannot recognize clinically. The brain pathology in this series refers only to gross damage, extensive enough to be demonstrable by the clinical history of brain damage or of focal seizures or by the pneumoencephalogram or the electroencephalogram.

In answer to Dr. Aird: Ordinarily there is agreement between the neurological evidence of localized brain injury and the electroencephalographic pattern. I am sure, however, that we do not have as close an agreement as Dr. Aird, because we have not been as meticulous as he is in carrying out localization studies. I agree with Dr. Aird that it is important to search for acquired factors and that even the brain wave pattern is not the final answer to the origin of seizures. The hereditary characteristic is represented by a gene, which is probably a large protein molecule; so if we are to pursue this elusive problem of the origin of epilepsy into its ultimate lair, we must go even beyond the neurophysiological mechanism of brain cells and demonstrate these protein molecules, and for complete eradication of genetic epilepsy, we must beneficially modify their configuration.

DIAGNOSTIC DRIFTS, DECEPTIONS AND COMMON MISSES

M. Pinson Neal, M.D., Columbia, Mo.

When a patient presents himself to one of you as his physician, a mystery is faced. You accept this fact and attempt to unravel the mystery. No one can boast the ability to set out alone, make correct diagnoses and fathom the nature of all diseases, any more than one can chart the course of a given disease or make of an individual case an average case.

Effective treatment is the aim of all medical practice. Early and accurate diagnosis is imperative if treatment is to be effective. It is the general practitioner to whom the average patient first appeals for help; therefore, the former bears singular responsibility. Many diseases are self-limited; some that otherwise carry a high mortality rate are curable when promptly recognized and adequately treated. To treat diseases without a diagnosis and without a knowledge of their behavior may be no more effective than trying to warm one's feet by moonlight.

Sometimes it is as important to know what kind of patient has the disease as to know what kind of disease has the patient. For the general practitioner of the early part of this century there were 24 hours in each day—he had time, or at least took time, to listen to the patient's and the family story. He usually knew of the feuds and fights in advance and took that information into account. He was not concerned with noonday luncheon clubs, golf courses, automobile races, fishing rodeos, the many present day medical and hospital staff meetings to be attended, and Wednesday and Saturday afternoons and Sundays off, and he was not pestered with fund drives for every imaginable thing except a retirement fund for broken down men of medicine. To him duty implied service—and serve he did! He brought to the sickroom an air of cheerfulness, confidence and optimism, though his treatment was sometimes founded on tragic errors of diagnosis. Too often today, however, physicians on the first visit start many patients on one of the antibiotic or so-called miracle drugs without seriously attempting a diagnosis.

The indiscriminate use of the "wonder" or "miracle" drugs without first determining the nature and cause of the disease is making a lost art of diagnosis. Changes in clinical picture and modification of signs mask or conceal symptoms and in some instances are the cause for depriving the patient of needed specific therapeutic agents. Truly, diagnosis should be a prerequisite for treatment, and patients, not their microbes, should be considered and treated. In the treatment of many infectious diseases there are bacteriostatic, virostatic or rickettsiastatic agents that may retard or repress the growth of infectious agents, but the body must still develop and exert its own defenses as antitoxic, immune body and cellular reactions. In many diseases immunity needs to be developed or borrowed immune products employed.

The treatment of the damages caused by microparasites, is a special task that requires medical ingenuity, experience, skill and individual attention. The physician is still faced with this problem even though the "miracle" drugs may have made possible the control of pathogenic micro-organisms. In chronic brucellosis this is very evident. In diphtheria, botulism and tetanus, antitoxic substances are still necessary to combat the soluble products having toxic action. Most diseases are relatively simple to restrain and cure in their early stages but become increasingly difficult to manage with each day of neglect or improper treatment. Too often a physician is called or starts diagnostic investigation after what began as a small snowball has rolled downhill to become an avalanche.

Is there too much diagnostic emphasis placed on information obtained from the many laboratory tests? There can be no substitute for a carefully taken and weighed history, with examination and observation of the patient by competent clinicians. Without this information, intelligent use of the laboratory as a diagnostic aid is not possible. Tests, no matter how well done, will not do the thinking for the clinician. Laboratory tests and roentgenologic observations are important in confirming and, in many instances, in establishing diagnosis; however, they are not always employed with judgment. Such a diagnostic approach, neglecting or misinterpreting history and physical findings, reveals lack of understanding by the physician and may be conducive to mischief, loss of valuable time and unnecessary cost. Be you reminded, however, that "he who practices medicine without the aid of a laboratory belongs to a past generation of physicians."

The subject under discussion is one with which I am familiar through years of experience as a consultant and active pathologist. In considering the deceptions and common misses as problems in diagnosis, I have given thought to means whereby those of the past could have been prevented and repetition in future cases avoided.[1]

PYREXIA

Body temperatures are commonly elevated as a more or less physiological process. Such elevations occur in metabolic diseases, such as acidosis and eclampsia, in conditions involving tissue necrosis, such as infarctions and the disintegration of blood clots, and in the infectious diseases in general. It is not uncommon for patients in the terminal stage of a fatal illness or for those severely ill with an infectious disease, especially the aged with pneumonia, to have normal or subnormal temperatures as evidence of little or no resistance. Certainly, it is true that failure for fever to develop in response to a severe infection calls for a grave prognosis. Unexplained fever is a frequent cause for extensive studies and anxiety on the part of the physician and patient. Among conditions where this is an occurrence are malignant diseases, especially Hodgkin's disease with its rather characteristic Pel-Ebstein, or Murchison-Sanderson, type of fever, toxic goiter, tuberculosis, syphilis, undulant fever, thrombosis-embolism-infarction phenomena and nervous exhaustion.

Professor of Pathology, University of Missouri, School of Medicine.

Read before the Joint Meeting of the Section on General Practice and the Section on Pediatrics, at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 30, 1950.

[1] Neal, M. P.: Diagnoses Commonly Missed in General Practice, South. M. J. 40: 414-420, 1947.

MALIGNANT DISEASES

Malignant neoplastic diseases, including the leukemias and Hodgkin's disease, frequently give rise to obscure and prolonged fever. Numbers of autopsies have been performed upon victims of undiagnosed malignant diseases who had a history of prolonged fever of undetermined origin. The accompanying manifestations of anemia, loss of appetite, loss in body weight, fatigue, insomnia, the localizing hemorrhage from some tissue or body cavity, the painless jaundice, the retention of secretions or excretions, the evidence of local obstructions, such as difficulty in swallowing, and constipation, call for investigation and explanation. Biopsy of an available lesion or of a regional or sentinel lymph node and roentgenologic examination, particularly with use of opaque substances for the demonstration of abnormal openings and communications, displacements, stenoses, filling defects and other abnormal features, should make for ready diagnosis of the solid tumors. The diagnostic blood findings or, when in the aleukemia phase, bone marrow films, make the diagnosis of leukemia easy.

UNDULANT FEVER (BRUCELLOSIS)

Brucellosis, an important disease of a specific bacteriological type, is accompanied with many complaints of chronic or recurrent nature. Masquerading under many forms and symptoms, it can be diagnosed without reasonable doubt only on isolation by culture of the causative organism from the patient in the acute stage of the disease. A relative or presumptive diagnosis is commonly and properly made on a combination of repeated blood agglutination reactions showing a rising titer, and skin and opsonocytophagic tests. The diagnosis of Brucella infection or undulant fever on the basis of only one of these or, even worse, on the "therapeutic test" is not reliable. A skin test does not distinguish past infection from present active infection. The complacency of those who rely upon it is deprecated, for, all too often, it is misleading. If it shows a rising titer, the agglutination test is good presumptive evidence in acute cases, but some strains of the organisms are not agglutinated even by the serum of the patient from whom the strain was isolated. The agglutination test is positive more frequently in acute than in chronic cases of brucellosis, but complete agreement is absent concerning the agglutination titer level at which significance, or positivity, begins and from below which one would interpret a negative reaction. A "positive agglutination" may follow one or more skin tests from which the antigen has sensitized the individual. The recognition of chronic brucellosis is as difficult as would be the diagnosis of syphilis without the Wassermann or other serologic tests. Many patients whose condition has been diagnosed as chronic brucellosis have eventually been found to be free of that disease and to have or show evidence of having been suffering from a malignant growth, leukemia, Hodgkin's disease, toxic goiter, hypothyroidism, tuberculosis, syphilis or nervous exhaustion.

DISEASES OF THE THYROID

Hypothyroidism.—This condition, commonly encountered in obese, myxedematous and cretin types of persons as a major manifestation, is easily recognized, but when encountered in lower degrees, it is commonly missed. To this larger group belongs the hypothyroid person with sensitivity to cold, prematurely wrinkled dry skin, constipation, nervousness, vertigo, often a puffy face, and, generally, with a mental lassitude, particularly seen in the schoolrooms in "flunkers" or "repeaters." The subnormal basal metabolic rate, the most significant criterion in diagnosing the condition, evidences the metabolic disturbance that is responsible for most of the subjective findings. The administration of a potent thyroid preparation is most striking in its reward, bringing about the change of a follower to a leader, a dullard to a scholar, and a person of the vegetative type—indolent, indifferent, inactive, languorous, mentally and physically sluggish—into an active, ambitious, alert, energetic person possessing mischievous potentialities.

Toxic Goiter.—A toxic goiter can and should be recognized in a patient from the general symptoms, signs and history, the diagnosis being confirmed by the basal metabolism test. The patient, however, may have a history of low grade fever persisting for months and of going from one doctor or clinic to another. It is to be emphasized that a basal metabolic rate above normal may be the result of conditions other than hyperthyroidism and is a measure only of a metabolic disturbance and not of the mischief a goiter is doing.

SYPHILIS

Frequently syphilis, this "great imitator," a universal disease of man, in spite of all efforts at its control still escapes the dragnet of diagnostic procedures. One of the sundry manifestations is prolonged fever. Positive or negative serologic tests are not conclusive for or against the diagnosis of this disease. Symptoms, signs and history must be given full consideration. When there is reason for question after considering all these factors, spinal fluid examination should be made, including cell count, globulin determination, colloidal gold test and a serologic test, preferably the Wassermann.

Inadequate attention has been given the patient in whom the only indication of syphilis is a positive serologic test. The diagnosis of syphilis is particularly important in those states having a premarital blood test law to the exclusion of other methods of recognizing syphilis. The serologic tests miss the patient with syphilis in its most infectious period, the chancre stage, and yield positive findings to the highest degree in the later stage of the disease, when the patient is really harmful only to himself.

A number of conditions are now recognized as yielding false positive serologic reactions for syphilis: those caused by respiratory, infectious and febrile diseases, especially malaria and infectious mononucleosis, and those following immunization, significantly against tetanus and smallpox. In these conditions a clinical history, properly interpreted, a spinal fluid examination and repeated serologic tests will bring clarification. The repeated tests of serums will on quantitative determinations show a titer remaining at a constant level or possibly increasing in syphilis; whereas, in those serums giving the "biologic false positive reactions" the titer usually decreases or, in a majority of cases, gives a frank negative reaction within three months after subsidence of the responsible factor. In patients with these false positive reactions there are no false spinal fluid reactions.

VASCULAR ACCIDENTS

Thrombosis and Embolism.—The protective mechanism of blood coagulation as a physiological process may be harmful or even fatal, as in thrombosis, embolism and infarction phenomena. To the physician these phenomena remain the one great hazard to surgery as tragic complications to trauma, pelvic inflammations, vascular damage and pregnancy in the postpartum period. To the public they constitute one of the "acts of God" in the form of a visitation by the "Grim Reaper," taking the life of a patient who is in convalescence from one of the named conditions. Sudden death may occur dramatically in the patient in whom a fracture is progressing properly, in the postpartum patient when all is well and in the postsurgical patient who is ready for dismissal. Unexplained fever, anxiety and restlessness of the patient many times give warning prior to the development of dyspnea, cyanosis and shock as evidence of pulmonary embolism. Dislodgement of thrombi formed in some portion of the venous system and carried as an embolus or emboli to the right side of the heart and from there to the pulmonary arteries most often follows gastric and pelvic operations. Fatality usually occurs between the sixth and eleventh days following trauma, surgery or delivery. Life terminates as suddenly as the automobile motor stops from a gas line "vapor lock." Almost all of those who succumb to this condition do so within less than one hour of the first manifestation, and fully one half of them die within less than five minutes. Medical literature reveals that pulmonary embolism is responsible for 80 of every 1,000 postoperative deaths, for two deaths in every 1,000 operations and for one death in every 1,000 patients receiving hospital care.

The pulmonary symptoms of embolism are often unfortunately the earliest recognized manifestation of an unsuspected thrombus somewhere in the venous system. Thrombi are most likely to occur where there is venous stagnation, as in patients who because of the nature of their illness must be kept immobile, are obese and have known cardiac deficiencies and "poor circulation."

Myocardial (Cardiac) Infarctions.—Cardiac infarction has changed from a rather rare to a common disease. During the 10 year period ending in 1949, the number of cases of coronary thrombosis treated in the University of Missouri Hospitals was exactly twice the number that had been seen in the previous 10 year period. Prior to and during the first year of World War II from 20 to 25 patients a year were admitted to one Swedish hospital with coronary thrombosis with infarction of the heart. In 1948 there were 136 such cases, and the 25 among them ending fatally were verified by postmortem findings.[2] The high price paid for overwork, anxiety, worry and the great use of tobacco, as seen particularly in the medical profession with its death rate from coronary disease, is alarming. Not all patients exhibit the severe and classical diagnostic manifestations. Some of them escape diagnosis and suffer cardiac rupture or severe dilatation under exertion or during excitement. The patient unknowingly abuses his heart and shortens life because the primary lesion was unrecognized and he was not warned. Too frequently coronary arterial disease is diagnosed at the autopsy table.

Patients suffering this catastrophe need early diagnosis, for treatment centers predominantly on protection from further damage. The electrocardiogram in most cases shows changes which are diagnostic. The test should be repeated in the patient when it at first fails to show myocardial damage. A negative electrocardiogram in no sense indicates an undamaged myocardium. It is a valuable additional and supportive finding—not a final test. When there is absorption from an established area of myocardial necrosis, the blood sedimentation rate becomes more rapid than normal and so persists, even after the fever, the leucocytosis and neutrophilia have disappeared. This test is of significant value in differentiating myocardial infarctions from angina pectoris, in which it is unaltered.

ANEMIA

It has become a modern fad to have anemia, and for some physicians to make such a diagnosis and prescribe iron, transfusions, folic acid, vitamin B_{12}, liver or liver and gastric extract preparations, without the benefit of blood studies and other examinations that may be required to classify the anemia, if, indeed, it is present, and to determine such therapeutic need. The general practice of administering the specific anti-pernicious-anemia elements to patients in whom the condition has not been diagnosed as well as to those with the common anemias of iron or other deficiency, such as that following blood loss or produced by parasitic or bacterial infections, toxic, drug or chemical action, is illogical, wasteful of scarce agents, expensive and useless. The majority of patients suffering from anemia require iron replacement therapy, and, if the anemia is severe, transfusions of blood. In others the condition is soon corrected if the factor or factors of causation are removed.

NUTRITIONAL DEFICIENCIES

The nutritional deficiencies are many and vary as to cause, type, degree, tissues involved, manifestations, lesions and in requirement for therapy. One should ever be conscious of the fact that nutrition is to some degree involved in most diseases. A high percentage of the cases seen and treated in adulthood are the result of chronic alcoholism, for alcohol does not contain the vital food elements that it replaces. Nutritional disturbances may be the cause of anemia, delayed healing of surgical or traumatic wounds, prolonged convalescence, sterility, miscarriage, rickets, faulty bone and tooth development, osteomalacia, edema, neurological manifestations, digestive disturbances, and other conditions. The cause as well as the nature of these conditions must of necessity be determined before initiating treatment and applying corrective measures to prevent repetition.

Malnutrition can exist on "three square meals daily." Much of the thought expended on sex education, anti-alcohol and cancer control campaigns could with profit be expended on this problem. The cancer control program, laudable as it is, affects largely those of 50 or more years. Programs to make healthier men and women from the school children who still have 50 or more years of life expectancy should also have much attention and support. Experts estimate that millions of Americans are living—or worse, many are dying—on inadequate diets. Too many, particularly those of school age, reach for a candy bar, when they need a vitamin rich, wholesome apple or orange. In health-building programs there has been neglect in utilizing teachers who live in almost daily contact with millions of school children. Through these, education in health matters can be carried to their charges, and demonstrations are possible by frequent measurements and progress records for those having mental curiosity or interest. Nervous instability is becoming our national disease. Poor diet may be one of the chief causes of this condition.

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[2] Malmros, H., cited in Infarction of the Heart, Foreign Letters, J. A. M. A. 142:275 (Jan. 28) 1950.

The child with a digestive disorder or an acute nutritional upset manifested by acidosis, nausea, vomiting, fever and abdominal pain may be given a diagnosis of appendicitis and be operated on, with resulting chagrin to consultant and surgeon who ignored the acetone-loaded urine, or failed to have a urinalysis done. In those cases the leucocyte count, which fails to show an elevated or rising neutrophil percentage, rules out infection.

Among industrial workers and outdoor men subject to heavy sweating and loss of sodium chloride, deficiency of this chemical may cause a serious metabolic disturbance bringing on myalgia or heat cramps, particularly of abdominal muscles, and may be mistaken for "an acute abdomen." A history usually suffices for diagnosis; if not, a simple chemical determination will reveal the deficiency which can be easily corrected.

INTERNAL PARASITES

Stoll[3] has estimated 44,900,000 human helminthic infestations in our population of about 144,000,000, or a population infection of 31 per cent. He terms trichinosis, oxyuriasis and uncinariasis as of special importance in this country. In routine examinations, urinalyses reveal diabetes mellitus in about 0.4 per cent, serologic tests for the diagnosis of syphilis yield about 2 per cent positive reactions and blood counts show a blood dyscrasia in a small fraction of 1 per cent. Internal parasites are ignored many times and commonly missed. In some locations physicians are ever conscious of the possibility of malaria, hookworm, Ascaris, Oxyurias and amebic infections. It would be most interesting to know what your individual answers would be to the question, "How many examinations for internal parasites or their ova were requested by me last year?" Trichinosis is to be considered especially in the patient who has typhoid-like symptoms, with a negative blood culture and a negative Widal reaction. Malaria is often missed because the patient had been taking an antimalarial drug in amounts sufficient to reduce the numbers of parasites in the circulating blood, making their finding difficult or impossible. Amebiasis is usually missed by the employment of an unsatisfactory technique.

NERVOUS EXHAUSTION

Emotional and neurotic disturbances, psychoneuroses, functional nervous disorders, neurasthenia and constitutional inadequancy are acceptable as expressions of a condition, if not as diagnostic terms. These constitute not pathological entities but psychological elements, which the general practitioner finds are as hard to interpret and, often, just as important as are the physiological and anatomical factors. Within the last three decades nervous exhaustion has become a fairly common condition, yet many times it is missed, or the symptom complex is misinterpreted. An ever increasing number of individuals who are physically and possibly mentally exhausted and living in anxiety states have prolonged, unexplained fever and other symptoms without demonstrable organic basis. For some, our modern way of living is just too unsettled and strenuous. In these patients, rest, relaxation, relief from responsibilities and anxieties, change of environment and a regulated schedule of work and play with a balanced diet work magic. It frequently becomes necessary that such a patient be told, "Your symptoms are real enough, but they are not being produced in an organ that a surgeon can remove and they are not amenable to any drug or chemical agent." The Chinese writer Lin Yutang has been credited with saying, "American worship of hard work is a national cross on which men crucify themselves," and yet the great English philosopher and bishop Richard Cumberland proclaimed, "It is better to wear out than to rust out."

SUMMARY

A plea for definite and early diagnosis as a prerequisite for prompt and applicable therapy is made.

ABSTRACT OF DISCUSSION

Dr. Oscar B. Hunter, Washington, D. C.: To the pathologist it is sometimes disconcerting to find that physical examination, careful history of case and mental concept vary from the clinical examination, which has not been made by the clinician. He must allow the intern or resident or someone else to do it, or the laboratory tests are taken at their entire face value. I have always told my students, "No matter whether your test comes out this way or that, if you disagree with your clinical findings, take the clinical findings and check your laboratory test." It is also distressing to see tests of all kinds on the patient ordered without reference to the clinical manifestations. That is not good practice. We would much prefer to work directly under the physician or the pediatrician, and prove or disprove a patient to be suffering from the condition which he suspects. I would like to hear Dr. Neal say a word about the newer tests for malignant conditions, particularly from the serologic standpoint. Many such tests have proved unsatisfactory. Syphilis is always with us and offers a difficult problem of diagnosis. At least 42 other conditions may be confused with syphilis. Treatment should not be based only on a positive Wassermann test, but on the clinical manifestations plus any assistance that can be given by the Wassermann test. It is unfortunate that an individual is labeled syphilitic when he has no syphilitic manifestations other than a positive serologic reaction. I think we have a much better understanding, particularly in the postoperative cases, of the development of phlebothrombosis or thrombophlebitis in the leg, with the attendant difficulties in the lungs with formation of massive or minute emboli or infarcts. Lead poisoning could be discussed at length. A machinist working in a Navy yard was dismantling an old ship and burning off paint with a blow torch. Pain developed, and he was about to be operated on for appendicitis, when the blood count showed he had a large amount of basophils in his blood. The diagnosis of lead poisoning was made and the man's life saved. Dr. Neal has called attention to many important matters that need to be reviewed, and we trust that our misses will become fewer.

Dr. J. B. Bilderback, Portland, Oregon: At times, it is difficult to determine the cause of fever in a child. Frequently one will do the most careful physical examination and have the support of a good laboratory, and nevertheless be unable to determine what is causing the fever. It often takes all one's training and patience to make the right early diagnosis of acute abdominal pain in young children, particularly in beginning appendicitis or intussusception. Examination of a child with unexplained fever is not complete unless one or several examinations of urine are made. Malformations of the urinary tract are rather common in children, as autopsies reveal an occurrence of 5 to 12 per cent malformation. The crux of Dr. Neal's paper is that one should make the diagnosis early and be sure what is wrong before treatment is started. Ideally, that is true, but it is sometimes very difficult, particularly in cases where you might have beginning meningitis and do not know the type. In meningitis, especially, every hour counts, because your results depend largely on how soon treatment is started. We have witnessed one of the most wonderful decades in therapeutics. The sulfonamides and the antibiotics have followed each other so closely that we are hardly used to one before we have another. And now we have the antihistamines, ACTH (pituitary adrenocorticotropic hormone), cortisone and their new cousins. Let us all hope now that the test of time will prove their worth.

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[3] Stoll, N. R., in Karsner, H. T.; Lund, H. Z., and Sanford, A. H.: The 1947 Year Book of Pathology and Clinical Pathology, Chicago, The Year Book Publishers, Inc., 1948, pp. 512-518.

Dr. M. Pinson Neal, Columbia, Mo.: As far as the newer procedures in the diagnosis for malignant growths are concerned, as a morphologic pathologist I believe in the biopsy, the histologic section properly interpreted being the one conclusive means of arriving at a true diagnosis. None of the chemical tests are accepted as diagnostic in a given case. Exfoliative cytological diagnosis has its place in a screening program, but it is not depended on by even its strongest adherents as a final criterion in an individual case, at least for radical surgery. Dr. Bilderback mentioned starting treatment without having an established diagnosis. The trouble with this is that most of the modern drugs and agents modify symptoms, and therefore one loses the guiding light that points the way and the crutch that helps carry one to certainty. The use of one of the "miracle" drugs as a therapeutic agent without an established diagnosis of the disease is a too common trend or drift. The acceptance of reports on some laboratory procedures as diagnostic, when false positive reactions are common and are not duly considered, constitutes deception. Failure to obtain an adequate clinical history and to employ definite diagnostic procedures may be responsible for numbers of diagnostic misses.

RINGWORM OF HANDS AND FEET

HISTORICAL REVIEW

James Herbert Mitchell, M.D., Chicago

In my paper entitled "Ringworm of Hands and Feet," which was read before the annual meeting of the American Medical Association in June, 1916, at Detroit, and which was published in The Journal, I stated as follows[1]:

> Tilbury Fox was probably the first observer to report a recognized case of trichophyton infection of a volar surface. The diagnosis in his case was simplified by the fact that the lesion began on the dorsal surface of the hand as a typical ringworm, and gradually progressed until it involved the interdigital and palmar surfaces of the fingers. In 1888, Pellizari reported the occurrence of seven cases of infection of the palms and soles in a series of 150 cases of trichophytosis capitis. The first careful and systematic study, however, was not made until 1892. In January of that year, Djelaleddin Moukhtar, working in Fournier's clinic, presented two cases before the Societe de dermatologie. They were of the eczematoid dyshidrotic type, with abundant mycelial threads, and excited much interest and discussion by the societe. During that year, four more papers by the same writer appeared. In the last of these he collected reports of twenty-five cases, seventeen of which were personal observations.
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> In 1908, Whitfield described five cases of ringworm of the hands and feet "indistinguishable from an ordinary outbreak of acute vesicobullous eczema." In 1910, Sabouraud reported six cases of intertriginous eczema of the feet, four of which gave cultures of Epidermophyton inguinale, and one case with lesions on the hand. In February, 1911, Whitfield recorded observations in seven additional cases. In November, 1911, Sabouraud presented his observations on the subject at a special meeting of the Dermatological Section of the Royal Society of Medicine. The discussion was opened by Whitfield with a paper in which he classified the clinical types and reported fifteen additional cases. In the general discussion which followed, most of the members present told of having encountered the disorder among their private patients.
>
> Since 1911, the most comprehensive paper on the subject is that of Kaufmann-Wolff. She made a clinical, histologic and mycologic study of twenty-five cases which formerly would have been accepted as dyshidrosis. In America, Montgomery and Culver reported an infection of the feet, following eczema marginatum of the groin, from which Epidermophyton inguinale was grown. In 1915, Hartzell reported four cases which he had seen "in the past few years."
>
> In 1916, Lane reported two cases, both of which were in women. One patient had lesions on the plantar surface of the foot, and the other had lesions involving the nails and both dorsal and palmar surfaces of the fingers.

Prior to the publication of the papers by Hartzell and by Lane, the condition had gone practically unrecognized in the United States. After the publication of my paper in 1916, interest in the subject was aroused and there came a rapid acceleration in the number of papers appearing in the medical press until to date there is now a bibliography approaching 300 full length papers.

At the present time, papers on ringworm of the hands and feet are about as frequent as talks on "Low Back Pain," "The Acute Abdomen," and "Some Common Skin Diseases Seen in General Practice." I am unable to estimate the number of times my lantern slides of fungous diseases have been lent to speakers who were qualified to discuss the subject but who had failed to provide themselves with the necessary slides.

In the original paper in 1916, a careful study of 65 cases was reported, and photographs of the various manifestations of ringworm of the hands and feet were presented. A careful reading of that paper leads me to say that no statement made therein calls for retraction to date.

At the annual meeting of the American Dermatological Association in 1921, I read a paper entitled "Further Studies on Ringworm of the Hands and Feet."[2] The differential diagnosis, the methods of culture of the organisms, and the types of organisms found were set forth. In that paper, the whiskey flask was described as being very useful by way of providing large surfaces for giant cultures without the necessity of making subcultures.

Distinguished Lecture in Dermatology, read before the *Section on Dermatology* at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

[1] Ormsby, O. S., and Mitchell, J. H.: Ringworm of Hands and Feet, J. A. M. A. 67:711 (Sept. 2) 1916.

[2] Mitchell, J. H.: Further Studies on Ringworm of Hands and Feet, Arch. Dermat. & Syph. 5:174 (Feb.) 1922

At the annual meeting of the American Dermatological Association in 1922, I read a paper on "Erosio Interdigitalis Blastomycetica." This condition was first described by Gougerot and Goncea in 1915, and later by Fabry in 1917, but my case was apparently the first to be reported in this country. It was seen Aug. 10, 1921, and was presented at the January meeting of the Chicago Dermatological Society in 1922. The condition is due to Monilia (Candida) infection and is usually found in the third interspace of the fingers. The first cases seen were limited to obese, orthodox, Jewish women. Further studies showed that Monilia infections are essentially intertriginous.

In a paper entitled "Amycotic Dermatoses Simulating Ringworm and Erosio Interdigitalis Blastomycetica," read before the annual meeting of the American Dermatological Association in 1928, I stated[3]:

> My purpose in this paper is to call attention to a series of cases in which lesions were presented that simulated ringworm infection and erosio interdigitalis blastomycetica, but in which a fungus could not be found. Some of the lesions may not be acknowledged by experienced clinicians as even resembling ringworm, whereas other lesions of this group will probably call forth emphatic insistence that they are ringworm, and that I have failed to demonstrate the organism. My answer to such insistence is that I have no proof to offer other than negative mycotic results.

Quoting further, I said:

> Bacteria as the causative agents of dyshidrotic eruptions seem to have attracted little attention. Rajka, however, is convinced that staphylococci and streptococci may produce such eruptions, and he described in detail a group of six cases. In his series, the dyshidrosiform, symmetrical eruption was usually preceded by an impetiginous lesion. The vesicles, which were sterile at first, became infected in the course of from one to three days and contained pus cells. He was unable to determine the pathogenesis of the symmetrical outbreak. The condition might be allergic, he thought, or a hematogenous dissemination either of the organisms or of their toxins. Rajka concluded that there are three forms of dyshidrosis: mycotic, microbic and nonparasitic. He stated the belief, however, that further study might lead to the placing of many of the cases of the third group into one or the other of the first two groups.
>
> In general, the nonmycotic lesion in the group of cases that I am calling attention to does not resemble dyshidrosis. The lesion is more superficial than ringworm, and is not characterized by a deep-seated vesicle as is the mycotic infection. The lesion usually has a well-defined advancing border, but the individual element is a minute, yellow, serous plug rather than a deep-seated vesicle. There is less variation in the components of the lesion than in ringworm. The coexistence of pustular lesions elsewhere on the body is a fairly constant feature of all of this group of cases.

Continuation of studies on bacteria as a possible cause of lesions on the hands and feet simulating mycotic infections resulted in the presentation of a paper before the Section on Dermatology at the annual meeting in Cleveland in 1934. In the summary of this paper, I stated[4]:

> There is a marked tendency to regard all acrodermatoses as ringworm of the extremities.
>
> There is a need for careful laboratory examination of all dermatoses of the hands and feet before arriving at a diagnosis.
>
> I agree with Sabouraud, MacLeod, Walker and Roxburgh that impetigo (Tilbury Fox) is due to the streptococcus; this fact can be proved with ease.
>
> A group of five cases of streptococcic infections (impetigo) of the extremities simulated mycotic infection sufficiently to lead to errors in diagnosis.
>
> The infections were found to yield within one week to baths of corrosive mercuric chloride and weak ammoniated mercury ointment.

The importance of demonstration of the presence of a fungus by microscopical examination or the culture tube is emphasized by the fact that in Illinois, ringworm of the hands and feet is not compensable as an occupational dermatosis. I have had a number of private patients with occupational dermatitis who were denied compensation on the statement of dermatologists that these patients had ringworm. These statements were made by dermatologists after inspection only and with no attempt at examination with the microscope and the culture tube. In occupational dermatoses, one of the commonest mistakes is to assume that because of the presence of clinical evidence of ringworm of the toes, any dermatosis of the hands is, therefore, of mycotic origin.

In 1934, I presented a paper at the annual meeting of the American Dermatological Association on "Monilia Infections of the Hands and Feet," in which I called attention to the essential differences in the manifestations of Monilia infection of the hands and feet from those produced by the Trichophyton and Epidermophyton organisms.

Monilia infections of the hands and feet are essentially intertriginous and symmetrical with little or no vesication as seen in the well-recognized manifestations of hands and feet. Monilia onychia is almost always preceded by "bolster-like" paronychia, first described by MacLeod, whereas the ordinary ringworm infections of the nails are usually devoid of any indication of paronychia.[5]

As chairman of the Section on Dermatology in 1927, I read a paper entitled "Need for Research in the Treatment of Epidermophytoses." In that paper it was stated[6]:

> During the past decade widespread interest in the fungous infections has been stimulated by an ever increasing number of papers on the subject from all parts of the civilized world, and by an ever increasing number of clinical cases, both in public and in private practice. Very little attention, however, has been devoted to the purely therapeutic side of the question. It is a noteworthy fact that the first intensive laboratory attack on the problem was made in this country by Schamberg and Kolmer (*Arch. Dermat. & Syph.* 6:746 [Dec.] 1922), who determined the fungicidal and fungistatic properties of various drugs and chemicals. Another valuable contribution to the subject was made by Meyers and Thienes (*J.A.M.A.* 84:1985 [June 27] 1925), and from these studies came their formula for the alcoholic solution of cinnamon oil and thymol, which in my experience has been a very valuable preparation."

Since that time many valuable contributions, which were the result of long range planning and careful execution, have been made on various phases of mycology, such as those of Peck and his co-workers on the fungistatic and fungicidal action of sweat and the fatty acids. Also the intensive research of Peck and others in the field of the problems pertaining to the trichophytins must be mentioned. The work of Weidman, Hopkins, Lewis, and others is too well known to all for me to need recall it.

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[3] Mitchell, J. H.: Amycotic Dermatoses Simulating Ringworm and Erosio Interdigitalis Blastomycetica, Arch. Dermat. & Syph. **19**: 659 (April) 1929.

[4] Mitchell, J. H.: Streptococcic Infection Simulating Ringworm of Hands and Feet, J. A. M. A. **104**: 1220 (April 6) 1935.

[5] Mitchell, J. H.: Infection of Skin and Mucous Membrane by Monilia, Society Transactions, Arch. Dermat. & Syph. **23**: 814 (April) 1931.

[6] Mitchell, J. H.: Need for Research in Treatment of Epidermophytoses, J. A. M. A. **89**: 421 (Aug. 6) 1927.

CLINICAL MANAGEMENT

Notwithstanding all this investigative work, no great stride has been made in the clinical management of the epidermal mycoses. Various new methods of treatment have been proposed but have been attended by disappointing results, prohibitive complications of technique, or dangerous sequalae.

In any discussion of the therapy of a cutaneous mycosis, there are certain factors that must be considered. One is the resistance, or if one prefers, the susceptibility of the person to a given fungus. It is a commonplace that patients will recall having had maceration in the fourth pedal interspace for 25 or 30 years without having had any other manifestation of ringworm. Being one of these persons, I have had ample opportunity to observe the mildness of the process.

Another factor which is most difficult to contend with is a sensitive skin. By this I do not mean necessarily a polyvalent sensitization, which is a real problem, but I refer to the skin that cannot tolerate two or three applications of half strength benzoic and salicylic acid ointment (Whitfield's ointment) without developing a luxuriant crop of follicular pustules of the Bockhart type, or two or three applications of chrysarobin, iodine, sulfur or mercury, without blossoming forth with an erythematous or vesicular dermatitis. In such instances, it is, according to my experience, necessary to stop all antiparasitic treatment and begin treatment of the dermatitis in the hope that it will subside.

The investigations of Peck[7] and his co-workers on the fungistatic and fungicidal effects of sweat and the fatty acids have resulted in tremendous advertising and selling campaigns for propionate-caprylate mixtures (sopronol propionate-caprylate compounds®) and zincundecate (desenex®) ointment. The essential ingredients in the former are caprylic and propionic acids and salts, and of the latter, undecylenic acid. Regardless of the opinion of others, it is my experience that both are of very little value in treatment of fungous infections.

The excellent work of Keeney[8] and his associates in the extensive and intensive study of the fungistatic and fungicidal activity of the fatty acids is convincing and impressive.

However, during the epidemic of ringworm of the scalp, I was searching for a fungicide that might be of value, and in so doing, I immersed hairs infected with Microsporum audouini in various preparations and planted them on solid medium. The organism grows as well or better with some of these preparations than without them.

My tests with Monilia (Candida) have been similar to that with hairs infected with audouini. Mixing equal parts of a thick creamy colony of Monilia with zincundecate ointment and planting on agar, I observed slightly smaller colonies at first, but eventually the growth was the same as that of the plant without the zincundecate ointment. Tests with propionate-caprylate mixtures ointment, benzalkonium chloride (zephiran chloride®), absorbine, Jr. (mixture of wormwood, thymol, menthol, iodine, echinacea, and calendula) and various other preparations gave similar negative results.

One episode in the treatment of dermatophytosis would have been very amusing if it had not resulted in such serious consequences. Paul DeKruif, who, after two years of undergraduate medical school training at the University of Michigan, has become the medical adviser to all the world via *The Reader's Digest,* pounced on an article by Dr. Francis, a retired United States Public Health officer. This short paper, in which the retired medical officer advised the use of camphor and phenol, appeared in THE JOURNAL of Dec. 6, 1941.[9] The good physician's enthusiasm was unbounded and uninformed. He advised the use of approximately equal parts of camphor and phenol and stated that it was nonirritating and very effective in the treatment of ringworm of the hands and feet. Obviously, neither Dr. Francis nor DeKruif knew anything of the background of this preparation.

In the early nineteenth century, one Italian physician and one French physician, independently, hit on the combination of camphor and phenol for sterilization of wounds and for application to various abscesses and infections in general. This combination was later to become a well-known preparation called campho-phenique® (mixture of camphor, phenol, and liquid petrolatum), marketed by a drug firm in St. Louis. The firm claimed that it contained 49% phenol and 51% camphor. The irritation and damage to the skin resulting from its use led to an investigation by the Council on Pharmacy and Chemistry, the report of which appeared in THE JOURNAL[10] and was signed by Dr. Puckner. Samples of the preparation, bought in the open market, showed that the formula had been changed so that it contained 20% phenol and 38% camphor; the rest was liquid petrolatum. This mixture is relatively innocuous compared with the combination of equal parts of camphor and phenol touted by Francis and DeKruif. The danger in the use of the equal-parts combination lies in the fact that in the absence of moisture it is inert and does not conduct electricity. However, addition of water to the mixture immediately releases phenol from the inert combination, as can be determined by the addition of ferric chloride. Phenol burns result, inasmuch as fungous infections are favored by the moist, interdigital surfaces of the toes. I was very busy for a year or more treating the results of therapy advised by a superannuated physician and espoused by one who had never graduated in medicine.

Ionic medication of the mycoses attracted much attention some years ago. In 1931, Shaffer[11] presented a comprehensive review of the literature and the value of the technique of the various dermatoses. Ten years later Greenwood and Rockwood,[12] limiting their investigation to the use of copper sulfate in the treatment of the mycotic infections, agreed with Shaffer that the method is "complicated, technical, tedious, and time consuming." They found that when copper sulfate was introduced into the skin by iontophoresis, it was neither fungicidal nor fungistatic for T. gypseum, T. purpurium, and Epidermophyton inguinale.

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[7] Peck, S. M.; Rosenfeld, H.; Leifer, W., and Bierman, W.: Role of Sweat as Fungicide, with Special Reference to Use of Constituents of Sweat in Therapy of Fungous Infections, Arch. Dermat. & Syph. **39**:126 (Jan.) 1939.

[8] Keeney, E. L.; Ajello, L.; Broyles, E. N., and Lankford, E.: Propionate and Undecylenate Ointments in Treatment of Tinea Pedis and in Vitro Comparison of Their Fungistatic and Antibacterial Effects with Other Ointments, Bull. Johns Hopkins Hosp. **75**:417 (Dec.) 1944.

[9] Francis, E.: Phenol-Camphor for "Athlete's Foot," J. A. M. A. **117**:1973 (Dec. 6) 1941.

[10] Campho-Phenique, Report of the Council on Pharmacy and Chemistry, J. A. M. A. **48**:1365 (April 20) 1907.

[11] Shaffer, L. W.: Ionic Medication in Dermatology: Principles, Experimental Confirmation and Clinical Application, Arch. Dermat. & Syph. **23**:287 (Feb.) 1931.

[12] Greenwood, A. M., and Rockwood, E. M.: Iontophoresis of Copper Sulfate in Cases of Proved Mycotic Infection, Arch. Dermat. & Syph. **44**:800 (Nov.) 1941.

Inhalation of ethyl iodide has been found by J. H. Swartz [13] to be an effective method of treatment, but the words of Shaffer, quoted above, might be used again in the description of this treatment. An overdose may result in some embarrassment on the part of the physician.

Intravenous injections of various drugs, especially strong iodine solution (lugol's solution), have been extolled. Inspired by the enthusiasm of Levaditi, I gave a large number of intravenous injections of strong iodine solution some 25 years or more ago. The results consisted chiefly of an occasional sclerosed cubital vein.

In the management of the dermatomycoses, prophylaxis must be considered as important as treatment. Osborne has presented convincing figures showing the reduction of infections in schools by means of the chlorinated soda foot bath. Spring,[14] however, showed that scales were viable after soaking one and one-half hours in swimming pool water chlorinated to the point of tolerance, but that the organisms were no longer viable after soaking for two hours. It was found, moreover, that the chlorinated swimming pool water does not effectively reach and kill the fungi in the interspaces of the toes.

In an attempt by John W. Williams [15] to determine the habitat of Trichophyton interdigitale outside the body, 1,500 cultures were made, one-half of which were made from student lockers. Floors were scraped and the margins of pools were likewise scraped, but in all of the 1,500 cultures, only one possible positive culture was obtained and that could not be identified.

Jamieson and McCrea [16] were able to grow pathogenic organisms from the insoles of shoes, and the infection of a large number of girls in an orphanage after wearing cast-off shoes was clinical confirmation of his laboratory findings. Sterilization of shoes by means of formaldehyde has been routine practice by many dermatologists for years, and the wearing of boiled cotton hose is recommended by all. However, the indiscriminate use of formaldehyde is dangerous and may set up a chronic dermatitis.

TRICHOPHYTIN

The use of trichophytin in the diagnosis and treatment of the mycoses has been disappointing, but it appears that it is of more value in the diagnosis than in the treatment of the fungous infections. In a series of more than 1,000 tests, it was found by Lewis, MacKee and Hopper [17] that the reaction to trichophytin is specific, but the specificity is determined by genus rather than by species. Different species of fungi vary greatly in their ability to sensitize, and patients with severe mycoses may fail to react. However, in all cases of trychophytid reaction the trichophytin test gave positive results, as also in all cases of inflammatory eruption due to a given fungus. It was found that the patch test was not so delicate nor so reliable as the intracutaneous test. There was little difference in the response of the skin of different parts of the body. The conclusion of these authors as to the value of the test in actual practice is of much interest. They believe that a positive reaction is of value only when it agrees with other findings, in which case it is of value and points to a favorable prognosis. But when the reaction is negative in the presence of true fungous infection, the prognosis is poor. When both the reaction and the examination for fungi are negative, it is fair to assume that the eruption is nonmycotic. This latter statement is of particular importance in occupational dermatoses.

Muskatblit [18] has found that the clinical diagnosis was more frequently corroborated by the trichophytin test than by the laboratory examination. In clinically mycotic cases, the test showed positive reactions in 60.3%, whereas laboratory confirmation was positive in only 39.7%. This seems like a low percentage for laboratory confirmation.

The use of trichophytin in the treatment of the mycoses is as yet unsatisfactory. When the case histories and the data of some of the highly enthusiastic reports are analyzed, it appears that the optimism of the writer is not justified, or at least it is not entirely supported by the evidence submitted.

The case against the use of trichophytin in the treatment of the dermatomycoses was well presented in 1935 by Traub and Tolmach.[19] In a series of 135 cases, using a commercial preparation in some of the cases, a pellicle preparation of their own in others, and a combination of the two in still a third group, they found apparent cures in 14 cases. Some of the patients showed early recurrence, and some of the so-called cures were questioned. In 63 cases no change was observed, or the patient's condition was made worse. The authors concluded that trichophytin had little, if any, effect on the course of the treatment.

The results of the use of vaccines, which differ from trichophytin in that toxic products, together with fungous elements, are utilized in treatment, were reported in 1938 by Tolmach and Traub.[20] Using three different kinds of vaccine on 60 patients with dermatophytosis with and without ids and tinea capitis, they found that 60% of the patients were entirely uninfluenced, with 9% apparently cured. The authors believed that both the cure and improvement of the cases were subject to question and that vaccine treatment of dermatophytosis is not yet practical.

The work of Peck and his collaborators holds much of promise in the solution of the problems involved in the use of trichophytins. Various observers have maintained that the skin reactive factors in trichophytin were not necessarily identical with the therapeutic or immunizing principle. With this idea in mind, daFonseca prepared two different types of trichophytin extract, one called "dermatocofitin," containing only the skin test principle, and the other the "clasovaccine" or therapeutic principle, with no skin reactive factor present. Peck[21] attacked the problem by the study of pH cultures of T. gypseum in fluid Sabouraud medium. Starting from both the acid and alkaline side, he found that the pH of cultures of T. gypseum tended to go up or down the scale until a pH of 8.6 was reached, after which there was little fluctuation. In the period of rise there was an increase in skin test principle, whereas below a pH of 4, the reverse was true. By means of control and determination of pH, it was found possible to separate the skin test principle from the desensitizing fraction. The desensitizing trichophytins thus produced were found to be extremely effective in producing rapid desensitization in suitable patients without any local or focal reaction. The total nitrogen content of the trichophytin bore no relation to the amount of the skin test factors present in the bouillon.

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[13] Swartz, J. H.; Blumgart, H. L., and Altschule, M. D.: Ethyl Iodide Inhalations in Treatment of Mycotic Infections of Skin and Allied Conditions, Arch. Dermat. & Syph. **21**: 182 (Feb.) 1930.

[14] Spring, D.: Note on Effect of Chlorinated Swimming-Pool Water on Fungi of Toe Ringworm, Am. J. M. Sc. **185**: 775 (June) 1933.

[15] Williams, J. W.: Habitat of Trichophyton Interdigitale Outside the Body, Proc. Soc. Exper. Biol. & Med. **31**: 984 (May) 1934.

[16] Jamieson, R. C., and McCrea, A.: Ringworm of Feet: Shoes and Slippers as Source of Reinfection; Final Report, Arch. Dermat. & Syph. **44**: 837 (Nov.) 1941.

[17] Lewis, J. M.; MacKee, G. M., and Hopper, M. E.: Trichophytin Test: Its Value as Diagnostic Aid, Arch. Dermat. & Syph. **38**:713 (Nov.) 1938.

[18] Muskatblit, E.: Allergic Manifestations of Fungous Diseases, M. Rec. **152**: 273 (Oct. 16) 1940.

[19] Traub, E. F., and Tolmach, J. A.: Dermatophytosis: Its Treatment with *Trichophytin*, Arch. Dermat. & Syph. **32**: 413 (Sept.) 1935.

[20] Tolmach, J. A., and Traub, E. F.: Treatment of Dermatophytosis with Vaccines, Arch. Dermat. & Syph. **38**: 925 (Dec.) 1938.

Miller, Stewart, and Kimura,[22] however, attach much importance to the nitrogen content and accept the opinions of Bloch and his co-workers that this determination is the only method known at present for the standardization of trichophytin. Goodman and Marks[23] and Traub and Tolmach[20] are of the same opinion.

After considerable experience with trichophytin and oidiomycin as diagnostic and therapeutic aids, I have abandoned both as being of little value.

MYCOTIC INFECTIONS

In my early work with the mycotic infections of the hands and feet, I was influenced by Sabouraud who gave me the impression that all such cases were due to E. inguinale, or E. floccosum as it is known today. Therefore, only that organism was considered in the first series of cultures reported, although the Kauffman-Wolff organism was mentioned. However, in the second paper read in 1921, I reported the findings of 18 cultures of E. inguinale in a series of 103 cases and when the six cases previously reported are added to this number, approximately 20% had cultures of E. floccosum. In 36 cases the white organism was grown, and the addition to this number of the four previously reported cultures gave approximately 33% positive cultures for T. interdigitale, or T. gypseum as it is known today.

In view of these early findings of mine when I was groping along, it is interesting to note that Hopkins and his co-workers[24] in an intensive study of troops at Fort Benning, Ga., from 1942 to 1945 found T. gypseum in 47%, T. purpurium in 36%, and E. floccosum in 17% of the cases examined. Later Burke and Bumgarner[25] in a survey of 1,000 veterans found T. gypseum in 64%, T. rubrum in 34%, and E. floccosum in only 2%. Also in 1949, the same authors[26] reported the results of a study of 1,000 veterans with a service diagnosis of mycosis. In this series T. gypseum was found in 59.3%, T. rubrum 32.7%, and E. floccosum in 2%, and Candida albicans in 6%.

The gradual decrease in the number of positive cultures for E. floccosum is apparent in my own work, and the question has arisen in the past as to whether T. gypseum may not be the degenerative form of E. floccosum.

Sabouraud has said that two pathogenic fungi are never found in the same person. However, I have records and photographs of numerous cases in which one fungus was cultivated from the toes and another from the crotch. In an elderly man, cultures were made from the same scales from the inguinofemoral folds. The colony of E. floccosum could be seen at the bottom of the tube, and when subcultures were made, the two organisms coexisting could be definitely identified.

I am particularly interested in the findings of Burke and Bumgarner[26] in 41 patients, all white men, with service diagnoses of otomycosis. In only five were fungi found. In all five, a species of Aspergillus was cultivated.

Of all of the fallacies fastened on the medical profession by constant repetition in print and by word of mouth, the idea that all inflammatory conditions in the auditory canal are mycotic is about the most fallacious. In hundreds of cases with the history of a diagnosis of fungous infection of the ear and treated as such, I have yet to see a patient who had had a microscopical examination for a fungus made, much less a culture. In all the many cases seen in private practice, I have seen only one due to Aspergillus niger. My experience with these cases led me to present a paper on the subject before the Section on Dermatology at the Kansas City, Mo., meeting in 1936. Attention was called to the fact that these cases are due usually to microbic rather than to fungous infection and that the Streptococcus can frequently be grown. These findings have been corroborated by investigators who worked with naval personnel in the Pacific.

S. N., male aged 39 years. Fungous infection of the nails for many years. After daily applications of ammoniacal silver nitrate solution for three months, the nails were trimmed showing the thin black line of the nails but also showing the perfectly white thickened nail bed with no evidence of penetration by the ammoniacal silver nitrate solution. In this nail bed material, fungi were demonstrated microscopically and were viable.

Fungous infection of the nails is to me, as yet, an unsolved problem. The whitish involvement of the surface of the nail is usually amenable to local applications, but

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21. Peck, S. M., and Rosenfeld, H.: Effects of Hydrogen Ion Concentration, Fatty Acids and Vitamin C on Growth of Fungi, J. Invest. Dermat. 1:237 (Aug.) 1938.

22. Miller, H. E.; Stewart, R. A., and Kimura, F.: Undenatured Trichophytin: Preparation and Clinical Application, Arch. Dermat. & Syph. 44:804 (Nov.) 1941.

23. Goodman, H., and Marks, I.: Reactions to Trichophytin Compared with Reactions to Other Bacterial Products, Arch. Dermat. & Syph. 31:819 (June) 1935.

24. Hopkins, J. G., and others: Dermatophytosis at Infantry Post: Incidence and Characteristics of Infections by 3 Species of Fungi, J. Invest. Dermat. 8:291 (June) 1947.

25. Burke, R. C., and Bumgarner, F. E.: Superficial Mycoses of Veterans: Dermatophytosis and Cutaneous Moniliasis; Correlation of Clinical Manifestations and Etiologic Agent, Arch. Dermat. & Syph. 60:1120 (Dec.) 1949.

26. Burke, R. C., and Bumgarner, F. E.: Superficial Mycoses of Veterans: Survey of 1,000 Veterans with Service Diagnosis of Dermatomycosis, Arch. Dermat. & Syph. 60:742 (Nov., pt. 1) 1949.

when the nail bed is involved, every known method of treatment may fail. Surgical removal is usually followed by recurrence of infection in the newly formed nail. The roentgen ray is of no value. Iodine in goose grease and other liquids may be useful. Double strength benzoic and salicylic acid ointment may be of value, and the application of a carefully fitted 40% salicylic acid plaster may give results.

My therapeutic results with the use of ammoniacal silver nitrate solution in fungous infections of the nails as advocated by Nickerson and White[27] have amounted to nothing. I have treated a sizable number of cases with negative results. After four months of daily applications of ammoniacal silver nitrate solution to the nail of the big toe, the nail bed remains white, and numerous viable mycelia are present. I have other similar cases (figure).

25 East Washington Street.

[27] Nickerson, W. J., and White, S. J.: Therapeutic Value of Ammoniacal Silver Nitrate in Fungous Infections of Nails, Arch. Dermat. & Syph. **57**: 935 (June) 1948.

INTRAVENOUS USE OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH)

A REPORT ON ITS ADMINISTRATION IN TWENTY-FIVE PATIENTS

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Gordon[1] has recently reported that the increase in response in the eosinophil count and in the urinary excretion of steroids in subjects who received pituitary adrenocorticotropic hormone (ACTH) by continuous (12 hour) intravenous infusion was twentyfold when compared to response from the administration of the same dose of the drug given in a single intramuscular injection. With this knowledge, we administered pituitary adrenocorticotropic hormone intravenously to 25 patients with diseases generally known to be responsive to the drug. This report summarizes our experience with this form of treatment. We were particularly impressed by the effectiveness of small amounts of the medication when given by this route, for the doses employed were only fractions of the amounts that had previously been required by intermittent intramuscular injection.

MATERIALS AND METHODS

All patients studied were hospitalized and under our supervision during the entire treatment period. Blood pressure and weight were recorded daily. Urinalysis, complete blood count, erythrocyte sedimentation rate, total eosinophil count, electrocardiogram, serum sodium, serum potassium, serum chloride and the carbon dioxide combining power of the plasma were determined weekly. When indicated, these studies were done more frequently. In patients with rheumatoid arthritis and spondylitis the range of active and passive motion was determined weekly. All patients were on diets containing approximately 2 Gm. of sodium chloride a day. Pituitary adrenocorticotropic hormone[2] was administered each day in one of three ways: by continuous intravenous infusion for eight to 20 hours, by intermittent intravenous injection every six hours and by continuous intramuscular drip. With one exception, all patients received pituitary adrenocorticotropic hormone by continuous intravenous infusion during a portion of their treatment period. Administration by intermittent intravenous injection and by the continuous intramuscular drip method were employed mainly for the purposes of comparison with the continuous infusion technique. Prior to and during the treatment period several patients were given intravenous infusions to which medication was not added. When given over the 20 hour period the infusion was started at 11:00 a. m. and discontinued at 7:00 a. m. of the following day. This allowed time for necessary laboratory work and for the patient's self-care. When given continuously for eight to 12 hours the night hours were originally included because of the known diurnal variation in adrenal cortical activity.[3] In subsequent patients the daytime hours were included so that comparisons could be made with administration during the night hours. The medication for each patient was kept separately. Initially the daily dose of pituitary adrenocorticotropic hormone used was 20 mg. This amount was reduced by 2.5 to 5 mg. a day at three to six day intervals. If relapse occurred the dose was increased by the same amount. Subsequent patients were started on 5 to 10 mg. a day with gradual reduction in dose for maintenance purposes. The daily dose of pituitary adrenocorticotropic hormone was dissolved in a 5 per cent solution of glucose in distilled water containing 0.2 per cent potassium chloride.[4] When given for the 20 hour period the medication was added to 1 or 2 liters of fluid. When given for eight to 12 hours the medication was added to either ½ or 1 liter of fluid. Ten cc. of 1 per cent procaine hydrochloride (novocain®) were added to each liter of the intramuscular drip, and 300 TR (tubidity-reducing) units of hyaluronidase[5] were deposited at each site of injection. Transient local edema and induration occurred frequently with this procedure. By attaching the infusion bottle to a wheelchair most patients on intravenous infusion became semiambulatory and were able to sit in the chair or to walk behind it.

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Reviewed by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] Gordon, E. S.: Adrenal Stimulation by Intravenous ACTH, abstracted, J. Lab. & Clin. Med. **36**: 827-828 (Nov.) 1950.

[2] Supplied as acthar,® Armour Laboratories.

[3] Best, W. R., and Samter, M.: Variation and Error in Eosinophil Counts of Blood and Bone Marrow, Blood **6**: 61-74 (Jan.) 1951. Elmadjian, F., and Pincus, G.: A Study of the Diurnal Variations in Circulating Lymphocytes in Normal and Psychotic Subjects, J. Clin. Endocrinol. **6**: 287-294 (April) 1946.

[4] Supplied as kaladex,® Don Baxter, Inc.

[5] Supplied as wydase,® Wyeth, Inc.

Data on Twenty-Five Patients Treated with Pituitary Adrenocorticotropic Hormone (ACTH) Administered Intravenously

Case	Age	Sex	Diagnosis	Mode of Administration*	Days Treated	Range of Dose, Mg.	Average Daily Dose, Mg.	Total Dose, Mg.	Clinical Response‡	Reactions	Remarks
1 W. B.	31	M	Rheumatoid arthritis, severe	A C D	16 2 1	3-20 8 20	8 8 20	131 16 20	++++	Weight gain; euphoria; pyrogenic reaction	Refer to case report
2 W. M.	62	M	Rheumatoid arthritis, severe	A	42	2.5-10	6	155	+++	None	The response was more marked than that occurring with two previous courses of intramuscular injections of ACTH, each consisting of 1,500 mg. of ACTH given over a 15 day period
3 F. E.	36	M	Rheumatoid arthritis, mild	A	9†	2.5-10	8	72	++++	Weight gain; euphoria; hypertension	The reactions subsided when the daily dose given was reduced
4 M. I.	30	F	Rheumatoid arthritis, severe	A	11†	10-15	11	115	++++	Marked euphoria	The response was similar to that following a course of cortisone when 1,400 mg. had been given intramuscularly for 14 days
5 H. A.	24	M	Rheumatoid arthritis, mild	A	12	5-10	8	100	++++	Weight gain; euphoria; hypertension	
6 S. L.	49	M	Rheumatoid arthritis, mild; regional enteritis, severe	A	17†	5-10	8	150	++++	Weight gain; hypertension	In addition to complete remission of the arthritis, the steatorrhea which had been present for many months disappeared
7 M. S.	48	F	Rheumatoid arthritis, moderate	A	7	5-10	7	50	++++	None	The response was similar to that occurring with one previous course of intramuscularly administered ACTH when 1,000 mg. were given over 15 days; the onset of relief was more rapid than had occurred previously
8 W. W.	29	M	Rheumatoid arthritis, moderate	A C	16 3	3-20 4-8	9 7	141 20	+++++	Pyrogenic reaction	A previous course of intramuscularly administered cortisone, 1,700 mg. over 12 days, had given a response evaluated as +++
9 W. P.	31	M	Rheumatoid spondylitis, moderate	A C D	16 2 1	5-20 4 20	8 4 20	121 7 20	++++	Weight gain; moon face; ankle edema; pyrogenic reaction	Within six days of cessation of medication a relapse occurred; this responded rapidly to another course of intravenously administered ACTH—the daily dose was 5 mg., and the period of administration was five days
10 J. M.	24	M	Rheumatoid spondylitis, severe; rheumatic heart disease, inactive	A B C	7† 2 3	8-10 10 8	9 10 8	62 20 24	+++	Weight gain; moon face; hypertension; restlessness	The treatment was discontinued because of the restlessness which occurred when the continuous intravenous infusions for the 20 hour period were being given; the treatment was subsequently resumed at dose levels of 5 mg. per day, and no further reactions have occurred; the clinical response is unchanged
11 J. G.	34	M	Rheumatoid spondylitis, severe	A B C	7† 11 8	10-15 5-15 8-16	13 6.5 13	90 70 104	+++	Acne	ACTH administered by intermittent intravenous injection was less effective than administration of the same daily dose by continuous 12 or 20 hour infusions; there was no difference in response to the 12 hour infusion when it was given during the day or during the night; prolongation of infusion time from 12 to 20 hours seemed to increase the clinical response
12 M. T.	28	M	Reiter's syndrome, moderate	A	26	2.5-20	6	165	++++	Moon face; pedal edema	A prior course of ACTH given by the intramuscular route gave a response evaluated as +++; 1,500 mg. of ACTH had been given over a 15 day period; interruption of medication or substitution of placebo therapy resulted in prompt recurrence of his symptoms
13 R. M.	28	F	Rheumatoid arthritis, severe; psoriasis, severe	A	14†	5-10	6.5	90	+++	Weight gain; moon face; euphoria; hypertrichosis	The response was similar to a course of ACTH given intramuscularly; this consisted of a total dose of 2,000 mg. given for three weeks
14 W. F.	40	M	Rheumatoid arthritis, mild; psoriasis, severe	A C	10 4	1-10 20	4 20	39 80	++++	Acne; moon face; left foot drop	Refer to case report
15 T. J.	37	M	Rheumatoid arthritis, mild; psoriasis, severe	A	7	5-10	8	60	+++	Acne; moon face	The intravenous infusions followed a course of intramuscular administration of ACTH; the remission was maintained, and there was further, though still not complete, disappearance of the psoriasis
16 N. K.	35	M	Bronchial asthma; angioneurotic edema	A	5	5-15	9	47	++++	None	Symptoms recurred during the first three days during the interval in which the infusion was not running; these subsided shortly, when the therapy was resumed
17 M. P.	63	F	Bronchial asthma	A	8	3-20	11	88	++++	None	There was no response to the usual antiasthmatic measures, but rapid improvement occurred with administration of ACTH
18 L. L.	30	M	Bronchial asthma	C	5	8	8	40	++++	None	Refer to case report
19 R. A.	29	M	Bronchial asthma	B	2	5	5	10	++++	None	Similar to case 17
20 W. G.	57	M	Chronic disseminated lupus erythematosus	A	3	10-20	17	50	+++	Marked confusion	Refer to case report
21 C. G.	23	M	Polyarteritis nodosa	A	26†	10-20	17	445	++++	Weight gain; euphoria; personality change	A previous course of ACTH resulted in a response evaluated as ++; the total dose given was 1,500 mg., and this was administered for 15 days; relapse tended to occur when placebo infusions were substituted for the infusions containing ACTH
22 M. G.	30	M	Rheumatic fever, acute recurrent	A	13	10	10	130	+++	Gastrointestinal bleeding	Refer to case report
23 O. T.	59	M	Scleroderma	A	3	11	11	32	0	Restlessness; nausea and epigastric distress	When intravenous medication was resumed the same symptoms recurred and were severe enough to discontinue further treatment
24 J. G.	64	M	Neurodermatitis	A	11	3-20	9	91	++++	None	The improvement was dramatic in a disease which had been very resistant to treatment for many years
25 E. H.	28	M	Eczematoid dermatitis, angioneurotic edema	A	8†	5-20	12.5	90	+++	None	Substitution of placebo therapy on the third day resulted in initiation of relapse which was controlled by resumption of infusions of ACTH

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* ACTH was administered in one of four methods: by continuous intravenous infusion for 20 hours each day (A), by continuous infusion for 8 to 12 hours each day (B), by intermittent intravenous injections every six hours (C) and by continuous intramuscular drip for 20 hours each day (D). Comments under Response, Reactions and Remarks refer to the entire period of treatment and not to just one portion.

† The treatment period has not been completed as of this writing. ‡ The clinical response was graded from 0 (no response) to ++++ (disappearance of disease activity).

Pituitary adrenocorticotropic hormone was given intravenously to 25 patients for from two to 26 days. Twelve of the patients had rheumatoid arthritis. Of these 12, five had associated diseases: psoriasis in three, regional enteritis in one and conjunctivitis and urethritis (Reiter's syndrome) in another. Three patients had rheumatoid spondylitis, and four had bronchial asthma. Of the remaining six, one each had lupus erythematosus, polyarteritis nodosa, scleroderma, rheumatic fever, neurodermatitis and eczematoid dermatitis. The case reports are summarized in the accompanying table. Five cases will be described in greater detail.

REPORT OF CASES

CASE 1 (see table).—W. B., a 31 year old white man, had had chronic progressive rheumatoid arthritis involving most of the peripheral joints for the past seven years. He had had numerous hospitalizations and had received typhoid vaccine, desoxycorticosterone acetate, gold, salicylates and physiotherapy without definite benefit. Prior to the intravenous administration of pituitary adrenocorticotropic hormone, he had received three courses of the drug given by intramuscular injection at six hour intervals. In the first treatment 40 mg. were given daily for 12 days, a total of 480 mg. There was no clinical improvement or any significant change in any laboratory studies. Four hours after the first dose of pituitary adrenocorticotropic hormone (25 mg.) the eosinophil count had dropped 50 per cent. Two months later a second course of pituitary adrenocorticotropic hormone was given intramuscularly over a 12 day period. The total dosage was 1,000 mg., with the daily dose being 80 to 100 mg. There was moderate relief of pain, and the tenderness and swelling of the affected joints decreased. The sedimentation rate remained elevated. The total eosinophil count dropped more than 50 per cent. The patient relapsed within four days after the last dose of pituitary adrenocorticotropic hormone. One month after relapse the drug was started again, 100 mg. being given daily for 15 days. The response was similar to that which followed the previous course. The mode of administration was then abruptly changed to continuous intravenous drip given daily for 20 hours. Twenty mg. of pituitary adrenocorticotropic hormone were given daily for the first two days. Within 24 hours further improvement occurred, and in 48 hours the patient was free of joint pain and swelling. After 48 hours 20 mg. of the hormone were administered by intramuscular drip. On the next day he began to show mild relapse. He was again placed on daily continuous infusion of the drug, with 10 mg. being administered for five days, and then the dosage was reduced to 5 mg. a day for three days. Within 24 hours he had regained the previously noted improvement. The total eosinophil count, which was 121 cells per cubic millimeter before the intravenous mode of administration, fell to less than 11 cells per cubic millimeter. The sedimentation rate fell and was normal on the seventh day. On the thirteenth day the dose was decreased to 3 mg. daily for two days, at which time a mild relapse occurred. The daily dose was then raised to 5 mg. for four days, and within 24 hours the symptoms disappeared. One of the patient's greatest difficulties had been immobility of the mandibular joints. These loosened sufficiently so that dental care could be given for the first time in several years. Medication was stopped for four days, during which time a mild relapse occurred. Pituitary adrenocorticotropic hormone was then given by intermittent intravenous injection, 1 mg. being injected every six hours. There was some improvement, but on the second day headache and chills developed, and the temperature rose to 104 F. The temperature returned to normal within 24 hours. Three days after the pyrogenic reaction he was feeling well. At the present writing, three weeks since treatment was stopped, he has remained in 70 to 80 per cent remission.

Comment.—This case is representative of many patients treated in this series. The response to the intravenous form of administration was more rapid in onset and the improvement more complete than that occurring after administration of larger amounts of the drug given intramuscularly.

CASE 14 (see table).—W. F., a 40 year old white man, had had rheumatoid arthritis and psoriasis for seven years. On admission he had painful swollen knee, ankle and finger joints with moderate limitation of motion. He also had an extensive psoriasis. He was given a total of 2,500 mg. of pituitary adrenocorticotropic hormone by intermittent intramuscular injection every six hours during a 25 day period. The range of joint motion increased 50 per cent. There was decrease in the pain and swelling of the affected joints. The skin lesions cleared, although a few patches of psoriasis persisted. Facial acne and mild systolic hypertension occurred. The sedimentation rate did not return to normal. There was a 50 to 60 per cent fall in the eosinophil count. The patient was then started on oral cortisone, receiving a total dosage of 1,400 mg. throughout 18 days. There was recurrence of pain and swelling in the joints, and the skin lesions spread during the treatment. At this time pituitary adrenocorticotropic hormone was resumed, 5 mg. being given by intermittent intravenous injections every six hours for four days. Within 24 hours the pain and tenderness decreased. Mobility in the joints increased. On the fifth and sixth days 10 mg. of the hormone were given by continuous intravenous infusion over a 20 hour period. Five mg. were administered on the next two days, then 2 mg. daily for three days and finally 1 mg. daily for the last three days of treatment. Within 24 hours after starting continuous intravenous infusion further improvement occurred. Within 72 hours the patient felt better than he had during any of the previous treatment periods. He was able to walk without difficulty, and there was full return of strength in his hands. The skin lesions began to clear and at the end of the treatment period were no longer present. Reactions which occurred during treatment included facial acne, weight gain, moon-shaped face and a left foot drop. It is not known whether this neurological lesion is in any way related to the medication employed. The eosinophil count fell to less than 11 cells per cubic millimeter. An attempt is being made to keep this patient in remission by intravenous doses of pituitary adrenocorticotropic hormone given at weekly intervals.

Comment.—In this case the response to continuous intravenous administration of the drug was more marked than with intermittent intramuscular injections, intermittent intravenous injections or oral cortisone. The possibility of maintenance therapy by periodic intravenous infusions of the hormone is being explored.

CASE 18 (see table).—L. L., a 36 year old white man, had a one year history of bronchial asthma which was becoming increasingly severe. Because of refractoriness to the usual antiasthmatic measures he was given a six day course of pituitary adrenocorticotropic hormone. This was administered by intramuscular injections at six hour intervals. The average daily dosage was 125 mg., with the total being 760 mg. He responded rapidly to this medication. The vital capacity, which was initially 37 per cent of normal, rose to 90 per cent of normal. His appetite increased, and he felt better than he had for several months. After discontinuance of medication he remained well for several weeks but then relapsed and was rehospitalized. A week of conventional treatment was again ineffective, and he was started on intermittent intravenous injections of the hormone, 2 mg. being given every six hours for five days. He responded in the same manner as he had before. The total dose of the drug given was 40 mg.

Comment.—This case was the only one in this series in which the patient did not receive pituitary adrenocorticotropic hormone by continuous intravenous infusion. Had this route been tried it is likely that the response would have been just as satisfactory with even smaller doses. This report shows the practicability of the use of the hormone given intravenously in acute disease states. The total dosage used was $\frac{1}{20}$ of that given by intermittent intramuscular injection.

CASE 20 (see table).—W. G., a 57 year old white man, had had disseminated lupus erythematosus for two years. He had received three courses of pituitary adrenocorticotropic hormone therapy, each consisting of 2,500 mg., given over a three week period. The medication had been given intramuscularly at six hour intervals. The daily dosage was between 80 and 100 mg. Within 48 hours after onset of each course of treatment he was clinically improved. His appetite increased; a sense of well being prevailed, and pain decreased. The eosinophil count fell to 40 to 60 per cent of pretreatment levels. There was no significant change in other laboratory studies. The sedimentation rate remained elevated. Remission could be maintained only by high doses, for when the dose was lowered or treatment was stopped the patient promptly relapsed.

One month after the last course of treatment the hormone was started by continuous intravenous infusion. Twenty mg. were given daily for two days. On the third day the dose was reduced to 10 mg. Within 24 hours improvement similar to that with intramuscular therapy occurred. After 48 hours the improvement increased and was more noticeable than with any previous courses of treatment. The medication had to be discontinued on the third day because of the sudden onset of extreme restlessness and confusion. This lasted several hours. The eosinophil count had fallen from a resting value of 154 to less than 11 cells per cubic millimeter. Within three days after stopping administration of the hormone, the patient relapsed to his former state. He refused further medication if given by the intravenous route.

Comment.—Pituitary adrenocorticotropic hormone given by continuous intravenous infusion produced more rapid onset of improvement, as well as greater response, than had occurred with three previous courses of the drug given intramuscularly. The treatment had to be stopped because of the onset of toxic symptoms. This had not occurred previously. Treatment using smaller doses was not resumed because of the patient's refusal.

CASE 22 (see table).—M. G., a 30 year old white man, had had recurrent acute rheumatic fever. His complaints were those of severe precordial pain, cough and shortness of breath of several days duration. In the past he had been successfully treated for subacute bacterial endocarditis. On this admission the patient was acutely ill. A friction rub was heard over the entire precordial area. Diastolic and systolic murmurs were audible over the aortic area. There was prominence of the left cardiac border by x-ray, and fluid was present in the right costophrenic angle. Pituitary adrenocorticotropic hormone seemed indicated because of the gravity of the patient's condition.

The hormone was given by continuous intravenous drip for 13 days. Ten mg. were given each day. Within 24 hours clinical improvement had occurred. The friction rub disappeared by the third day. At the same time the temperature and pulse returned to normal. The patient continued to do well until the tenth treatment day, when he began to complain of epigastric distress. On the thirteenth day he suddenly passed a large tarry stool and went into shock. He recovered gradually under appropriate treatment. When questioned he remembered having had similar epigastric distress, although he had no knowledge of previous bleeding. Treatment with the hormone was not resumed.

Comment.—This patient was treated with pituitary adrenocorticotropic hormone by continuous intravenous infusion for 13 days. He received a total dosage of 130 mg. of the drug. On the thirteenth day of treatment massive gastrointestinal bleeding, which was most likely due to a peptic ulcer, developed. Gastrointestinal bleeding has been known to follow intramuscular injection of the hormone. This report emphasizes the dangers that are inherent in the use of the drug when any effective route is employed.

RESULTS

After our early experience with the intravenous infusion of the hormone, daily dose levels of 5 to 10 mg. were selected for use in further treatment. All patients responded adequately to these doses. Relapse did not occur in any patients during the period of treatment. All patients who were treated again responded in a fashion similar to, or even more rapid than, their response to the initial treatment. Many patients could be maintained on daily doses which were smaller than 5 mg. It was our impression that the critical level was represented by a daily dose of between 2.5 and 5 mg. Patients who could be maintained on these levels often remained in remission for varying periods of time when treatment was stopped. Those patients who required higher daily maintenance doses often relapsed promptly when medication was discontinued. Undesirable reactions occurred more frequently when higher daily doses of pituitary adrenocorticotropic hormone were employed. The only response to placebo injections or infusions was mild subjective improvement. Relapses occurred in three patients when placebo therapy was substituted for intravenous infusion of the hormone.

The response to the continuous infusion of a single dose of the drug during each 24 hour period was roughly proportional to the length of its administration. This was demonstrated in case 11 (see table), for with the same daily dose of pituitary adrenocorticotropic hormone the 20 hour infusion was more effective than the 12 hour infusion, which in turn was more effective than intravenous injections every six hours. Many patients responded satisfactorily to continuous intravenous infusion given for eight to 12 hours each day. In spite of the reported diurnal variation in adrenal cortical activity there did not appear to be any marked differences, whether the infusions were given during the day or the night. In fact, in a few patients the daytime administration appeared somewhat superior.

Ten patients had prevously received the drug in intermittent intramuscular injections. In these the response to intravenous infusion of the hormone was usually more prompt and complete. Remissions after cessation of intravenous treatment were generally more prolonged than those after a course of intramuscular injections. Intermittent intravenous administration appeared to be more effective than intermittent intramuscular injections; continuous intravenous infusions were more effective than continuous intramuscular drip.

Most patients showed a distinct increase in appetite during treatment. The low salt diet was accepted readily. The weight gained was usually lost subsequently, although several patients maintained a gain of 907 to 2,268 gm. (2 to 5 lb.) when treatment was discontinued. The eosinophil counts and the sedimentation rates fell in all patients. Eosinophil counts of less than 11 cells per cubic millimeter were common (i. e. none seen). The change in the eosinophil count and in the sedimentation rate occurred earlier and was more marked in the patients treated with continuous intravenous infusion of pituitary adrenocorticotropic hormone than in those treated with intramuscular injection. No significant alteration was seen in the red blood cell count, the hemoglobin level or the serum proteins. A polymorphonuclear leukocytosis occurred in the majority of patients. Two patients developed transient hyperglycemia and glycosuria. Hypokaliemia did not occur.

Medication was interrupted in seven patients because of undesirable reactions. In three of these treatment could not be resumed. The patient in case 20 refused further treatment, the one in case 22 had severe gastrointestinal hemorrhage, and in case 23 (see table) the same untoward symptoms recurred with subsequent treatment. Common complaints during the first few hours of infusion were flushing of the face, a feeling of tightness across the chest and a sense of fullness in the abdomen. It was our impression that when smaller volumes of fluid were administered these complaints became less frequent. Symptoms and signs suggestive of Cushing's syndrome, such as acne, moon-shaped face, fluid retention and hypertension, were seen in many cases. These tended to disappear with reduction in dose and interruption of treatment. Many patients exhibited varying degrees of euphoria. Pyrogenic reaction occurred in three patients who were receiving intermittent intravenous injections of pituitary adrenocorticotropic hormone.[6] These reactions did not recur with subsequent infusions. It is uncertain whether the left foot drop that developed in case 14 was in any way related to use of the hormone.

COMMENT

The response to the hormone given over the 24 hour period depends on the amount, the route and the frequency of administration. Heretofore the daily amounts have varied from 40 to 160 mg. at onset of treatment, with reduction to maintenance doses of between 10 and 20 mg. a day. The route of administration has been the intramuscular one. Injections have been given at four to 12 hour intervals but are almost routinely administered every six hours. When the total daily dose is subdivided and given at more frequent intervals there is a greater response, as judged both by clinical improvement and by laboratory tests.[7]

Attempts have been made to increase the effectiveness of the drug by alterations in its plan of administration.[8] Efforts have been made to prolong its action so that fewer injections would be required. A long-acting form of pituitary adrenocorticotropic hormone (adactar®), which is prepared by adsorbing the hormone onto a colloidal aluminum phosphate carrier, represents such a product. This material, given once daily, produced adequate responses, though local reactions limit its usefulness.[9]

Although the hormone has been used clinically for several years there has been little mention made of the possibilities of its intravenous administration. Some reasons for this may have been the impurities present in the earlier products, the potential hazards of foreign protein therapy and the belief that administration by this route would offer no advantages over the more convenient intramuscular route. Moreover, literature supplied by the manufacturer caution against its intravenous use.

In 1948 Sayers and associates[10] described the fate and metabolic effects of pituitary adrenocorticotropic hormone given intravenously. Single doses of 50 and 100 mg. were given intravenously, in 200 ml. of saline over a one-half to one hour period, to two adult men. The only untoward reaction was mild chill and fever in one subject. Within two hours after administration the plasma content of the hormone had returned to its preadministration level. The maximum activation of the adrenal cortex as measured by the metabolic response occurred by the third hour and disappeared by the end of the sixth. Gordon, as we pointed out, was able to show a twentyfold increase in response to pituitary adrenocorticotropic hormone when a given dose was administered intravenously over a 12 hour period, as compared with administration of the same amount by a single intramuscular injection.[1]

Our experience has shown that by the simple expedient of changing from intermittent intramuscular injections to continuous intravenous infusion much smaller amounts of the hormone were needed to produce effective responses. Reasons for these differences are not known, but it is of interest to speculate on possible explanations. The hormone disappears rapidly from the blood stream after intravenous injection.[11] In vitro incubation of the drug with plasma, kidney or liver tissue results in inactivation of the hormone. After injection of pituitary adrenocorticotropic hormone labeled with I^{131} the adrenal cortex was found to contain the highest concentration of the material of any organ in the body. Two hours after injection the labeled material was no longer detectable in the adrenal cortex.[12] Inactivation of the hormone by muscle enzymes has been demonstrated by Dr. C. H. Li.[13] These data suggest that local destruction of the hormone occurs in muscle, that the disappearance rate of pituitary adrenocorticotropic hormone from the blood stream is very rapid and that the drug is selectively absorbed by the adrenal cortex. It is therefore reasonable to assume that the effectiveness of the hormone given intramuscularly depends on the rate and amount of effective material absorbed. The greater effectiveness of intravenous infusion is due to the more continuous adrenal cortical stimulation and to the fact that destruction does not occur at the injection site. Only minute amounts of the drug are required at any given moment to stimulate the adrenal cortex, e. g., 10 mg. of pituitary adrenocorticotropic hormone given over a 20 hour period supplies only 9 gamma of the drug to the blood stream each minute.

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[6] Similar reactions were observed in two other patients, not included in this report, who were receiving the hormone by intravenous infusion. Pyrogenic reactions of this type are rare in this hospital. A check of the sterile needles supplied was negative for pyrogenic material. (We are indebted to Dr. L. L. Ely and the Baxter Company for performing these studies. We were reassured by them that kaladex® was nonpyrogenic.) Two of the five medication vials showed evidence of contamination. In one the solution was turbid and from the other a gram-negative rod was grown. Although not proven, it is likely that all the pyrogenic reactions were due to contamination.

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[13] Cluxton, H. E., Jr.: Personal communication to the author.

The obvious advantage of the intravenous form of administration of the hormone is its relative economy. In addition, the therapeutic results were often more satisfactory than had been seen with previous intermittent intramuscular administration. Refractoriness did not occur in any of the treated patients. This suggests that the phenomenon of refractoriness to the drug by the intramuscular method may be in part related to the mode of administration. The intravenous administration of pituitary adrenocorticotropic hormone is highly practicable in those acute conditions that in the past have responded satisfactorily to relatively short periods of intramuscular treatment. Patients must be followed closely when this method of administration is used, for undesirable effects may occur more frequently and with greater rapidity.

SUMMARY

Pituitary adrenocorticotropic hormone (ACTH) was administered intravenously for periods of two to 26 days in daily doses of 1 to 20 mg. to 25 patients with a variety of conditions. The average daily dose employed was between 5 and 10 mg. given for eight to 20 hours a day. Comparison was possible in 10 patients with previous courses of intermittent intramuscular injections, while in the remainder our past experience with intramuscular therapy was used as the basis for comparison. The therapeutic results were equally as good or even better, with only $\frac{1}{10}$ to $\frac{1}{20}$ of the doses previously employed. No patients were refractory to the hormone when given by this method. There were no patients who relapsed while being treated with adequate doses. There were no patients who were refractory on subsequent treatment. Reasons for the differences in the dose required by the two modes of administration are discussed. The advantages and disadvantages of the intravenous administration of the drug are enumerated.

ADDENDUM

Since completing this report we have treated 80 additional patients with the hormone by intravenous infusion. The initial treatment has been concluded in all patients. The longest period of continuous treatment was 42 days (case 2). Three patients included in the report have been treated again. The accumulation of further data has tended to confirm the results cited in the report.

BODY TEMPERATURES DURING ANESTHESIA IN INFANTS AND CHILDREN

John A. Bigler, M.D.
and
William Otis McQuiston, M.D., Chicago

Fever, convulsions and death following surgery on children is a sequence of complications that has long been dreaded by surgeons and anesthesiologists. Dr. Isabella C. Herb[1] pointed out in "Abt's Pediatrics" in 1925 that operating room temperatures should be between 65 and 70 F., and that temperatures above this are exhausting to the patient. Although the staff at The Children's Memorial Hospital was conscious of this danger, our only preventive measures were the usual ones—such as light draping, cancelling of elective surgery on excessively hot days and ice packs following surgery if the temperature was noticeably elevated at the conclusion of surgery.

In the summer of 1947 we were suddenly jolted out of our complacency by two deaths due to postoperative hyperthermia.

REPORT OF CASES

CASE 1.—T. M., 1 year of age, was operated on for correction of webbed fingers. The day before surgery his temperature was 100.4 F. rectally. No reason for this slight elevation could be found. His rectal temperature the next day before going to the operating room was 98.8 F. The anesthesia was started at 9:35 a. m., and the operation was completed at 1 p. m. Ethyl chloride induction, followed by open drop ether, was used for the anesthesia. During surgery the anesthetist reported that the child was not doing well. The pulse and respiration rates were rapid, and there was profuse perspiration. Oxygen and intravenous fluids were administered. Following surgery the child was placed in an oxygen tent, the temperature in the tent being 76 F. The body was very hot, and the feet were cold. The pulse rate was 150 to 200, and the respiratory rate was 48 to 80 per minute. Death occurred at 2:45 p. m., when the rectal temperature was 108.5 F. At autopsy there was edema and congestion of the brain and leptomeninges, petechial hemorrhages throughout the brain and miliary tuberculosis only of the lungs, liver and spleen. The impression of the main cause of death was heat stroke.

CASE 2.—D. D., the second patient, was first operated on for a tracheo-esophageal fistula at the age of 3 days. The proximal end of the esophagus was brought out through the neck. The lower end was ligated, and a gastrostomy was done. On his last admission, at the age of just past 1 year, his temperature had fluctuated from 97.8 to 100.6 F. rectally. Anesthesia for anastomosis of the esophagus to the fundus of the stomach placed in front of the thorax was started at 1:35 p. m., and the operation was completed at 6:25 p. m. Anesthesia consisted of cyclopropane with oxygen administered by the to-and-fro technique. An adequate airway and gaseous exchange were difficult to maintain. At the end of the operation the temperature was 101.4 F. rectally, the pulse rate was 106, and the respiratory rate was 108. Three hours later the temperature was 108 + F. rectally. In spite of the patient being in an oxygen tent and ice packs, death occurred 12 hours later. Preoperative medication consisted of morphine, $\frac{1}{32}$ grain, and atropine sulfate, $\frac{1}{300}$ grain. At postmortem the essential observations were cerebral edema and congestion of the lungs, liver and adrenals.

Personal communications from other physicians in the Chicago area revealed other similar deaths of children in whom hyperpyrexia was developing during or

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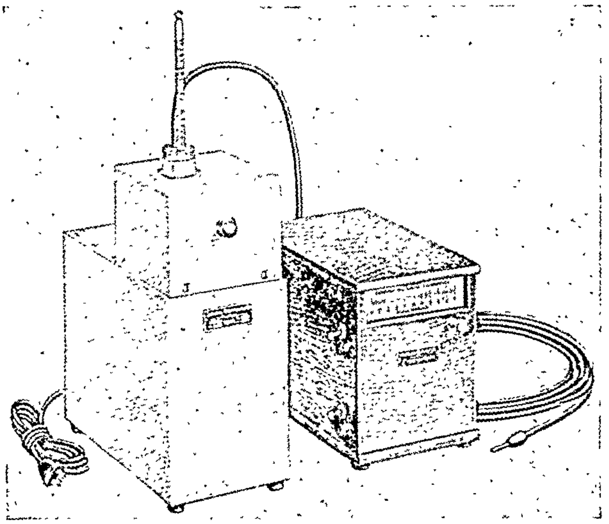
The water mattress was made by the Davol Rubber Company, Providence, R. I.

The thermo-electric clinical thermometer was made by the Central Scientific Company of Chicago.

From The Children's Memorial Hospital, Chicago, and the Otho S. A. Sprague Memorial Institute Laboratories, Chicago.

[1] Abt, I. A.: Abt's Pediatrics, Philadelphia, W. B. Saunders Company, 1925, vol. 6, chap. 160, p. 602.

following surgery. Although there have been some studies of temperatures during anesthesia, the significance of fever and its control has not been sufficiently emphasized. Knight[2] reported in 1942 that hyperpyrexia is of frequent occurrence during prolonged operative procedures, and that it has a deleterious effect on the recovery period. He believed that the closed system of administering anesthetic gases tends to raise the patient's temperature. He developed a gas cooler to control the rise in body temperatures. Burstein and Mark[3] state that in the closed system the carbon dioxide absorber, especially of the to-and-fro variety, tends to warm the breathing mixture. They reduced the heat by using ice bags on the upper end of the to-and-fro cannister and the face mask. By this method the rise in body and skin temperature is minimized. Without ice bags and with a room temperature of 85 F. the rebreathing atmosphere rises to between 104 and 113 F. With ice bag technique the gas temperatures were between 83 and 87 F.



Thermo-electric clinical thermometer with constant temperature well, galvanometer scaled for reading degree of temperature and rectal insert.

We were unable to adequately control the body temperatures in children by cooling the gases in a to-and-fro absorption system. We have had no experience with gases cooled with the circle technique.

PROCEDURE

Rectal temperatures taken at the termination of surgery revealed that the majority of the children undergoing surgery had some elevation of temperature. It seemed desirable that continuous temperature recordings should be made. Consultation by Dr. Bigler with Dr. Marshall N. States and Dr. Harris M. Sullivan of the Central Scientific Co., of Chicago, resulted in their construction of a thermo-electric clinical thermometer that was safe to use when explosive anesthetic agents were being administered.

The apparatus consists essentially of a thermocouple, one junction of which is held at a constant temperature in a constant temperature well, the other junction being an integral part of the rectal insert. The thermocouple current is read on the scale of a galvanometer that is calibrated in degrees. The instrument is completely electronic, and there are no sparking points.

Until the spring of 1948 we were concerned chiefly with the causes and prevention of hyperthermia. The advisability of producing hypothermia for the purpose of decreasing the oxygen demand during operation on "blue babies" was discussed. Perusal of the voluminous medical literature on cold therapy, the effects of cold and local refrigeration anesthesia, led us to believe that hypothermia may be produced safely in adults, but we were unable to find any reports of the deliberate production of hypothermia in critically ill children. In fact, the literature abounds with reports on the conservation of body temperatures in children undergoing surgical procedures. However, because of the acute need of increasing the arterial oxygen or of lowering the oxygen demand in patients with critical hypoxemia, we decided to resort to hypothermia.

Case 3.—Thomas O., aged 3 months and 25 days, was admitted to the hospital in May of 1948 with marked cyanosis. He had begun to have spells of cyanosis at the age of 2 months. During these attacks, which lasted for about 30 minutes, he became semicomatose and blue-black in color.

It was the unanimous opinion of the cardiologists, surgeons and anesthesiologist that the infant would probably die on the operating table. But it was obvious that he was doomed without surgery. Therefore, it was decided to attempt an anastomosis.

Morphine, 1/60 grain, and atropine, 1/800 grain, were administered one hour before the operation. Cyclopropane was administered by the to-and-fro technique, and the infant was surrounded with ice bags. His temperature was lowered until it registered 96 F. rectally. Very little cyclopropane was needed for maintenance of the anesthesia. In fact, for more than 90 minutes the cyclopropane valve was shut off. On the completion of an anastomosis between the aorta and the pulmonary artery hot water bottles were applied. When the rectal temperature reached 96.7 F. the patient began to react, and cyclopropane was again administered for closure of the incision. The patient was awake when he left the operating room. The total anesthesia time was three hours.

Convalescence: After 24 hours the infant was removed from his oxygen tent. Phleboclysis was discontinued, and he was given a full formula by bottle. He was discharged on the fourteenth postoperative day after an uneventful recovery.

RESULTS

The normal rectal temperatures of infants and children are approximately one degree higher than the mouth temperatures. In our tables, for convenience, we used rectal temperatures of from 99 to 100 F. as normal and placed all temperatures in units of one degree. Two hundred and fifteen patients between 4 days and 13 years of age who underwent surgery were studied. Eight patients had a temperature of from 100 to 101 F. on arrival in the operating room.

CONTROL GROUP

The control group consisted of 89 patients who had no cooling and 22 patients who were cooled with ice bags after alarming fever had developed. Hence, it is obvious that in these 101 children the number in whom extremely high temperatures were developing would be more than the number indicated in chart 1. It is also probable that some temperatures would have exceeded

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[2] Knight, R. T.: Elevation Of Body Temperature During Anesthesia and Its Control, Anesth. & Analg. 21: 117-119 (March-April) 1942.

[3] Burstein, C. L., and Mark, L. C.: Control Of Temperature Of Inspired Atmosphere In Absorption Technic, Anesthesiology 9: 197 (March) 1948.

104 F. had not ice bags been used before the termination of surgery. Twelve of the 22 patients were in such critical condition that ice bags were used before their temperatures reached 102 F. We did not feel justified in jeopardizing any child for the purpose of a statistical study.

As can be seen in chart 1, 62.3 per cent of the children in the control group suffered temperatures above 100 F. Seven of these 63 children suffered temperatures of between 103 and 104 F., 15 of between 102 and 103 F. and 17 of between 101 and 102 F.

Of the 22 patients on whom ice bags were used, eight became normal or subnormal before surgery was completed. Of these, the temperatures were from 99 to 100 F. in three, 98 to 99 F. in three, 97 to 98 F. in one and 96 to 97 F. in one. The remaining 14 patients continued to have fever at the close of the operation.

In 41 patients with fever no ice bag cooling was used. Only five of these had a normal temperature, and one had a temperature of from 98 to 99 F. at the end of surgery. The other 35 continued to have fever. Although ice bag cooling of the patient was of some help, it was not as helpful as expected.

The normal and subnormal temperatures recorded in chart 1 were the highest temperatures recorded during surgery. Of those below 97 F., all but one were in infants under 6 months of age (chart 3). The exception was under 1 year of age. Of the 38 patients without some fever, only 20 were within the normal 99 to 100 F. range.

In this control group there was a spread of temperatures of from 93 to 104 F., or of 11 degrees.

ICE BAG COOLING

During the hot summer months ice bags were used on a number of surgical patients in an attempt to control the temperatures during surgery. This not only was disturbing during the operation but also was not particularly effective in controlling the fever in some patients. Twelve patients had ice bags packed around the body from the start of anesthesia. Of these, six (50 per cent) developed fever, two of from 103 to 104 F. and four of from 100 to 101 F. Of these six patients, body temperature was above normal at the end of surgery in four, normal in one and subnormal in one. Of the six with no fever, one was normal, two were from 97 to 98 F., and three were from 96 to 97 degrees F. at the termination of surgery. In two of the latter hot water bottles were substituted for the ice bags during surgery.

Because of this experience with ice bags, the development of a more easily controlled technique seemed advisable. A rubber mattress, measuring 19 by 24 inches, was constructed for us by the Davol Rubber Co. This mattress is compartmented in order to give it stability when it contains water. Inlet and outlet tubing at opposite corners facilitate the regulation of the mattress temperature by introduction of hot or cold water.

WATER MATTRESS GROUP

The water mattress was filled and in place on the operating table under the sheet. Each child was placed on the mattress before the induction of the anesthesia and surgical preparation. The temperature of the water in the mattress varied from tap water of 60 to 70 F. to ice water of 40 to 50 F. The temperature of the water was varied according to the age of the child, the room temperature and the degree of cooling desired by the anesthesist. For patients under 1 year of age ice water was not necessary at any time.

The water mattress was used with 102 patients. In 40 (39.2 per cent) the temperature rose above 100 F. rectally (chart 1). There were no patients with a fever over 102 F., in contrast to 24 in the control and ice bag groups. In only eight were the temperatures 101 to 102 F., and in 32 the temperatures were 100 to 101 F. The temperature was normal before the end of surgery in 25 of the 40 patients. It was below 100 F. in 15 minutes in two patients, in 30 minutes in 10, in 45 minutes in two, in 60 minutes in five, in 75 minutes in five and in two hours in one. Of these 25 patients, the temperature before the end of surgery was 99 to 100 F. in 17, 98 to 99 F. in three, 97 to 98 F. in three, 96 to 97 F. in one and 94 to 95 F. in one. In three the cool water was replaced with warm water when the temperatures became subnormal.

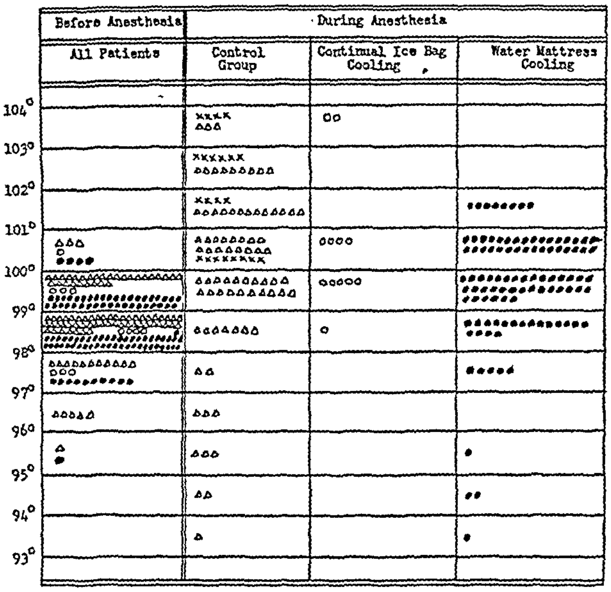

Chart. 1.—Highest temperatures recorded during anesthesia, with the explanation of symbols as follows: triangle, patient in whom no cooling method was employed; "x," patient in whom ice bags were used after rise in body temperature; open circle, patient in whom ice bag cooling was used continually, and closed circle, patient in whom water mattress cooling was employed.

Of the 63 cases with their highest temperatures normal or subnormal, as indicated in chart 1, those below 97 F. all occurred in infants under 1 year of age. Temperatures of from 97 to 100 F. were about equally distributed in the age groups over 1 year of age. Hot water replaced the cool water when the temperature became subnormal in 17 instances. In the mattress-cooled group the variation in temperatures was 11 degrees, but the fevers were not as high, and more cases fell within the normal or slightly subnormal range.

TEMPERATURES BEFORE SURGERY

In only eight patients was there an elevation of temperature before surgery. In one patient ice bags were used from the beginning of the anesthesia. The temperature was 101 F. before surgery and gradually came down to 100.4 F. in two hours at the end of the operation. Three patients with temperatures of 100.2, 100.6 and 101 F. had no cooling, and at the end of surgery, one and one-half to two hours later, they had fevers of 101.6, 101.5 and 103.4 F. The remaining three patients were cooled with the water mattress. The temperature before surgery was 100.2 F. in two patients and 100.8 F. in the third, but at the end of 45 minutes two were normal, and the third was 100.6 F. at the end of surgery, one hour and 40 minutes later.

ONSET OF FEVER

A temperature of over 100 F. was present in 109 of the 215 patients studied. In chart 2 the time of onset of the fever after the beginning of surgery is divided into 15 minute periods for the first hour and then into hourly periods thereafter. In 63 patients (57.8 per cent) the temperature began to rise above normal in the first 15 minutes, while 27 (24.7 per cent) did so in the next 15 minutes. This means that 82.5 per cent of the febrile patients began to develop a temperature within the first 30 minutes. It is apparent that something besides the actual surgery must influence the temperature.

	No Cooling	Part Time Cooling	Continual Ice Bags	Cold Water Mattress
0 - 15 minutes	△△△△△△△△△△△ △△△△△△△△△△△△	×××××××××× ×××	○○	●●●●●●●●●●●●●● ●●●●●●●●●●●●●● ●●●
15 - 30 minutes	△△△△△△	××××××××××	○○	●●●●●●●●●●●●
30 - 45 minutes	△		○○	●
45 - 60 minutes	△△△△			●
1 - 2 hours	△△△△△△△			
2 - 3 hours	△△			
3 - 4 hours				●

Chart 2.—Time of onset of fever after start of anesthesia (only temperatures above 100 F. recorded), with the explanation of symbols as follows: *triangle,* patient in whom no cooling method was employed; *"x,"* patient in whom part time cooling was used; *open circle,* patient cooled through the continual use of ice bags, and *closed circle,* patient in whom water mattress cooling was employed.

PREOPERATIVE MEDICATION

In all but a few of the very young infants some preoperative medication was used. In patients a few weeks to a few months of age small doses of atropine were administered preoperatively. Between 1 year and 5 years of age the majority of the children received both morphine and atropine, while most of the children 5 years of age and older received morphine and scopolamine hydrobromide as preoperative sedation. Although it is generally believed that the belladonna group of drugs may cause fever, no relationship between these drugs and fever could be shown in this series. The old belief that morphine will tend to prevent fever [1] may be correct, but it did not prevent fever in over 50 per cent of the patients studied.

ANESTHESIA

The majority of the 215 patients studied were thoracotomies, usually for correction of a congenital heart lesion. These patients were almost routinely anesthetized with cyclopropane administered by a to-and-fro technique through an endotracheal tube. This may have had an influence on our observations; however, open drop ether, with and without oxygen insufflation under the mask, semiclosed, circle absorption and pharyngeal insufflation techniques were all used in various other types of surgery, and no definite influence on temperature elevation could be shown due to the method of administration.

AGE OF THE PATIENTS

The patients varied in age from 3 days to 13 years. The age of the patient had a very definite influence on the temperature during surgery. Below 6 months of age the infant tends to develop hypothermia—only one patient in this group had a temperature above 100 F. Between 6 months and 1 year of age, half the patients developed hyperpyrexia while one-half developed hypothermia. From 1 year to 13 years of age the children in the control group had an average temperature of 101 to 102 F., while the cooled group showed an average temperature of 100 F. The temperatures of all patients are shown in chart 3.

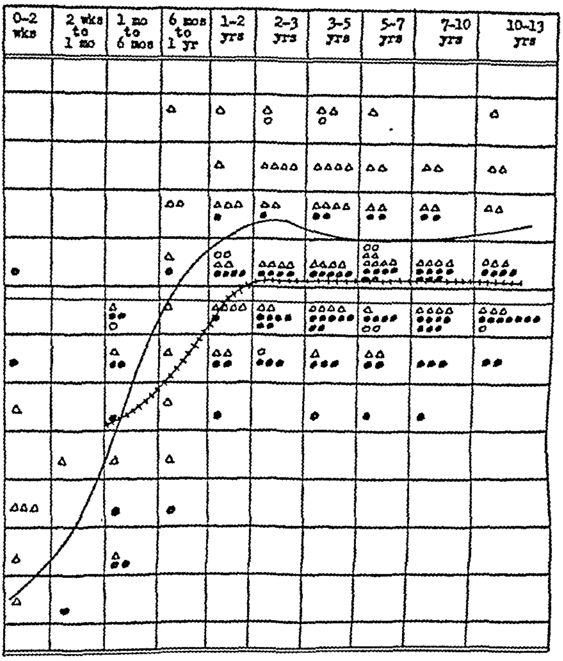

Chart 3.—Height of temperature during anesthesia relative to patient's age, with the explanation of symbols as follows: *triangle,* patient in whom no cooling method was employed; *open circle,* patient in whom ice bag cooling was used, and *closed circle,* patient in whom water mattress cooling was employed.

MONTH OF YEAR

There was very little difference between the number of patients with fever during the winter months and the number with fever during the hot summer months. Temperatures above normal were about equally divided between all months of the year, with the exception that the majority of fevers above 102 F. occurred between April and September. This same relationship holds true when one considers the operating room temperatures. We do not have air conditioning, and the temperature of the operating room varied from 69 to 88 F. Although there was a rise in temperature in some patients throughout this whole range, the majority occurred when room temperatures were between 76 and 82 F. The temperature about the patient must have been higher at all times due to the necessary draping (kept as light as possible), the number of people around the table and the operating room lights.

LENGTH OF SURGERY

In the group of patients studied each anesthesia lasted from 30 minutes to five hours. It can be seen in chart 2 that 82 per cent had a rise in temperature within the first 30 minutes. In most instances this will increase during the surgical procedure if cooling is not used.

RELATION TO TYPE OF SURGERY

As our thermo-electric thermometer was set up in only one of the operating rooms, the cases studied were rather selective. There were 154 cases, including great vessel surgery, anastomosis of the aorta and pulmonary arteries, division of patent ductus and excision of coarctation of the aorta. In 55 of these cases there was either no cooling or only ice bags about the patient after the temperature began to rise. In this group 41 (74.5 per cent) had fever above 100 F. Of the 11 patients who were packed in ice bags during the whole operation, six (54.5 per cent) had a temperature above 100 F. Of the 88 cases in which the cold water mattress was used, 37 (43.2 per cent) had some fever.

There were 11 cases of primary or secondary surgery of tracheo-esophageal fistulas. As would be expected when considering the age of these patients, only one suffered a temperature above 100 F. Mediastinal tumors and lobectomies made up 10 cases. Of the six patients without cooling, four suffered some fever, while the four who were cooled with the mattress maintained temperatures within normal limits.

Seventeen abdominal surgery cases included bowel surgery, abdominal and kidney tumors and bile duct atresia. Eight of 12 patients in the control group and two of five patients in the mattress-cooled group had some fever. There were four patients with inguinal herniorraphies in the noncooled group, all of whom had temperatures above 100 F.

In the control group there were 12 cases of surgery on bones and tendons, with fever in three patients, and one of three patients on whom skin grafts were applied had a fever. Of the remaining 16 miscellaneous patients, all in the control group, only one had fever.

TEMPERATURES AFTER SURGERY

It is always difficult to find the cause of postoperative fever and hence to rationalize on the relationship of temperatures during anesthesia and postoperatively. When no fever was present during anesthesia there was no significant difference in the number of children with fever within 72 hours postoperatively, whether cooled or not cooled. The average for each group was close to 50 per cent. The temperatures were 100 to 101 F. in 74 per cent, 101 to 102 F. in 20 per cent and 102 to 103 F. in 6 per cent.

In the control group of children with fever during anesthesia 77.5 per cent still had fever at the end of surgery, but only 50 per cent continued to have fever for 48 to 72 hours. In the mattress-cooled group the corresponding figures were 37.5 per cent and 42.5 per cent. There is little difference in the effect of cooling during anesthesia with respect to fever 48 to 72 hours postoperatively. Temperatures of over 101 F. were present in 42 per cent of the control group and 34 per cent of the water mattress group. All patients with anesthesia temperatures of 100 F. at the end of surgery had postoperative fever. This was generally higher in the noncooled group—one rising as high as 106 F.

There were 12 deaths in this group of 215 children. Four deaths occurred in cases of congenital tracheo-esophageal fistulas. Two of these were operated on at the age of 3 days (temperature of both being from 97 to 98 F.), one at the age of 4 days (temperature from 93.6 to 95 F.) and one 6 days old (temperature of 94.8 and 96 F.). All were in the control group; all had pulmonary infection before surgery, and all died shortly after the operation except one patient who died on the fourth day. Seven deaths occurred in the group with congenital malformations of the heart and one in the group with a double aortic arch. The temperatures were 91.8 to 95.6 F., age 7 months; 92 to 100 F., age 3 months; 92.8 to 94.6 F., age 6 months; 97.4 to 100.6 F., age 1½ years; 98 to 98.2 F., age 2¼ years; 98.4 to 98.6 F., age 2 months and 100 to 100.8 F., age 2 years. The two patients with temperatures over 100 F. were in the control group, and the rest were in the cool water mattress group. All died within 14 hours postoperatively, with the exception of two who lived two and six days respectively. None of these children were good surgical risks, and it was believed that the temperature during surgery had nothing to do with their deaths.

The postoperative course of the mattress group was generally better than that of the control group. All four patients with prolonged and unexplained fever were in the control group having fever during anesthesia. Major postoperative complications were about equally divided between the two groups and were usually related to the preoperative condition or to the immediate surgery. Major postoperative pulmonary infection occurred with approximately the same frequency whether or not the children were cooled during surgery. However, this series is too small to have statistical value on this point.

ANESTHETIST AND SURGEON

It is the opinion of both the technician anesthetists and the physician anesthetists who administer the anesthesia at The Children's Memorial Hospital that appreciably less anesthetic agent is required when the temperatures are subnormal. During surgery on "blue babies" subnormal temperatures seem to have a beneficial effect on the heart action. Exploratory operations on "blue babies" in which no anastomosis was possible had a mortality of 54.4 per cent in the uncooled group and a mortality of 14.4 per cent in the cooled group. Although the total number of these exploratory operations was only 18, the 40 per cent difference in mortality is probably significant.

The surgeons doing most of the operations have become very dependent on the information and control offered by the thermo-electric thermometer. Respirations and heart action are slower, and there is not as much perspiration and fluid loss. Hyperthermia can easily be recognized and controlled.

COMMENT

What the optimal temperature during surgery should be requires more study. From our own experience we feel that subnormal temperatures of between 95 and 97 F. are very satisfactory in selected cases. Burstein and Mark[3] state that without a temperature above normal the respiratory efforts remain effortless and of normal pattern. There is less laryngeal spasm, sweating is abolished and the pulse and blood pressure tend to remain normal. Crossman and Allen,[4] in writing on the treatment of shock by the reduction of body temperature, state that this causes a reduction of exudation and probably of toxin formation, a more liberal blood supply to the vital organs by constriction of the peripheral vessels and relief of anoxia by reduction of total metabolism. Temple Fay, in discussing the above paper, states that temperatures of 92 to 94 F. can be maintained for several days without ill effect. As body temperature is reduced to subnormal, more oxygen is had in solution in the blood, body tissue fluids and the cells themselves. Cellular metabolism is reduced, and therefore less oxygen is required. It has been found that for every degree of temperature change there is a change in metabolism of 7 per cent.

In reporting his experiments on the effects of hyperthermia and hypothermia in dogs, Prec et al.[5] reports that in the former there is increased oxygen consumption, reduced cardiac output and increased arteriovenous oxygen differential. The heart rate is increased, and the right auricular pressure falls. There is an increased demand by the tissues and vascular bed for blood. This, coupled with the reduced cardiac output, will lead to collapse unless vasoconstriction occurs. In hypothermia there is a decrease in oxygen consumption, respiratory and cardiac rates, and the blood pressure and the cardiac output fall.

Most of the above observations were true in our patients, as evidenced by less anesthesia, slower pulse and respirations, less perspiration and what appeared to us to be a better recovery period.

CONCLUSIONS

1. Temperatures of infants and children during surgery vary widely and should be carefully watched.
2. Infants under 6 months of age tend to develop subnormal temperatures during surgery, which so far we have not found harmful.
3. Fever during surgery developed in over 62 per cent of the children studied in this series between the ages of 6 months and 13 years when not cooled.
4. A cold water mattress is more efficient than ice bags in preventing fever.
5. Subnormal temperatures seem to be beneficial in certain selected cases.
6. Techniques, presently being perfected, for the simultaneous recording of heart rate, blood pressure, electrocardiograms, electroencephalograms and arterial oxygen saturation should be combined with temperature studies in children to give us added information on the effects of hyperthermia and hypothermia.

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[4] Crossman, L. W., and Allen, F. M.: Shock and Refrigeration, J. A. M. A. **130**: 185-189 (Jan. 26) 1946.

[5] Prec, O.; Rosenman, R.; Braun, K.; Rodbard, S., and Katz, L. N.: The Cardiovascular Effects Of Acutely Induced Hypothermia, J. Clin. Investigation **28**: 293 (March) 1949.

EXPERIMENTAL AND CLINICAL INVESTIGATIONS OF PERIPHERAL NERVE INJURIES OF THE UPPER EXTREMITIES

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Certain fundamental principles in the treatment of peripheral nerve injuries deserve re-emphasis from time to time. It has become a trite thing, but it is true that in the excitement connected with the immediate repair of a lacerated extremity tendons are mistaken for nerves and nerves are mistaken for arteries. The result is that a nerve may be sutured to a tendon or, even more frequently, a severance of the nerve trunk may not be recognized at all.

Early recognition of a peripheral nerve injury is the greatest single prophylactic measure that can be taken to insure a good result after surgical repair of an interruption in the continuity of a nerve trunk. Lesions of the median, ulnar, and radial nerves are the commonest of the injuries to the peripheral nerves in the upper extremities, and to these injuries must be added injuries of the brachial plexus. In general, it must only be kept in mind that an injury to a peripheral nerve produces the characteristic sign of a lower motor neuron lesion: that is, a flaccid paralysis, a loss of deep tendon reflexes and of sensation in all modalities, atrophy of muscles, and a reaction of degeneration on electrical stimulation.

The tests for lesions of the nerves most commonly injured in the upper extremity can be very simple. If a patient does not recognize a pin prick in the palmar surface of the distal two phalanges of the index finger it may be concluded that he has a lesion of the median nerve. If a patient does not recognize a pin prick in the palmar surface of the distal two phalanges of the little finger it may be concluded that he has a lesion of the ulnar nerve. The loss of sensation that follows a radial nerve lesion is so inconstant in the space bounded by the first metacarpal of the index finger and the thumb that it is better to rely on motor tests for the determination of a radial nerve injury. If a patient cannot extend his wrist with the palm flat on the table and drops the hand when the forearm is supported the patient has a lesion of the radial nerve. If the patient cannot make a cone with the tips of all his fingers and his thumb he has a lesion of the ulnar nerve. If a patient cannot make a complete fist by completely flexing the index finger or oppose the tip of the

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thumb to the tip of the index finger it may be concluded that he has a lesion of the median nerve. It must be obvious that if the lesion exists higher in the arm more peripheral muscles will be involved. The atrophy of the interosseous muscles—particularly between the space of the first metacarpal of the index finger and that of the thumb—that gives to the dorsal surface of the hand a skeleton-like appearance, with atrophy of the muscles of the hypothenar eminence, is characteristic of an ulnar nerve lesion. The paralysis and atrophy of the thenar muscles that place the thumb on a plane with the palm of the hand, thus producing an ape-like hand, is characteristic of a median nerve lesion.

The combination of nerves injured in a brachial plexus lesion is multiple. Therefore, it is quite confusing to speak of upper and lower types of brachial plexus injury. It is more accurate and more instructive to determine the muscles paralyzed and the nerves that innervate those muscles and thereby place the lesion accurately among the cords, trunks, or roots making up the brachial plexus.

In the presence of a peripheral nerve injury a second important principle prevails: the sooner the ends of the divided nerve can be united in accurate apposition by the finest suture material and the most meticulous technique possible the more successful will be the surgical end result. The ideal method of treating a divided peripheral nerve is to unite the severed ends directly by suture before neuromas are formed, before retraction has occurred, and before atrophy of muscles, fibrosis, and ankylosis of joints has taken place. It has been shown experimentally that muscle atrophy is less severe and ulceration of the skin less likely to occur if a divided nerve is united immediately after injury. There is abundant histological evidence to show that both in the animal and in the human regeneration is more perfect if the nerve ends are united before neuromas have occurred.

In my opinion it is better to unite divided nerve ends even in what may be considered a potentially infected wound than it is to leave the nerve ends disunited and allow neuromas to form and retraction to occur. Obviously, when neuromas form they must be resected with a loss of substance to the nerve trunk, thereby increasing the difficulty in bridging the gap between the divided ends of the nerve. Any nerve that is sutured under tension and in which stretching is necessary does not regenerate as successfully as one in which these conditions do not exist. With the advent of antibiotics there is no question in my mind that nerve ends should be sutured immediately, even though the wound may be potentially infected, provided careful debridement and mechanical cleansing of the wound is employed in the operating room in addition to the use of the antibiotic. It has been learned from experimental investigation that the local use of the sulfonamides does not interfere with the regeneration of a peripheral nerve. This does not mean that the local use of sulfonamides is superior to their systemic administration or to other antibiotics, but that if in the opinion of the surgeon the local use of sulfonamides is indicated he can be reassured that the resulting reaction in the tissues about the nerve will not handicap the regeneration of nerve fibers in the sutured nerve.

In certain conditions the repair of the nerve injury is of secondary importance to the overall treatment of the patient. A compound comminuted fracture of the humerus associated with a lesion of the radial nerve should be treated simultaneously with the peripheral nerve injury; but in such a condition, depending on the circumstances, the treatment of the nerve injury could be deliberately delayed. A large gap in continuity of a peripheral nerve must be classified and treated as a delayed peripheral nerve repair. If immediate end-to-end suture is not possible because of loss of nerve substance it is advisable to identify the proximal and distal nerve ends and anchor them as closely together as possible to surrounding muscle, fascia, or tendons by wire sutures. Thus they will be more easily found when definite repair of the nerve gap is undertaken. However, to deliberately delay the repair of a peripheral nerve injury in a clean lacerated wound without loss of nerve substance, even with the knowledge that the wound may become infected, is believed to be absolutely wrong.

It has been shown experimentally that every nerve injury is accompanied by a traumatic zone of degeneration. The result of this trauma causes the endoneurium to proliferate in the end of the central segment and to produce a disorganization in the usual pattern of nerve fiber degeneration. Traumatic degeneration and regeneration differ from wallerian degeneration and the following regeneration that occur when the nerve is separated from its cell of origin. An understanding of the simple mechanism of degeneration and regeneration and the microscopic changes that occur in a peripheral nerve fiber should prevent the repetition of certain practices doomed to failure and should be of great help to any surgeon who attempts to repair a peripheral nerve. It will make it obvious that the nerve should be handled with meticulous care and should be sutured with the finest material and needles available; that the sutures should always be placed through the epineurium of the nerve and not through the nerve trunk as a whole; that accurate apposition of the fascicles observed in the cross-sections should be attempted in order to restore the original pattern; that the passage of a metallic wire through a nerve trunk can only result in further degenerative products and in an obstruction to the regeneration of nerve fibers, and that the wrapping of the suture line with a metallic substance only interferes with the regeneration of nerve fibers because it prevents the ingrowth of blood vessels that help in the evacuation of decomposition products and the regeneration of nerve fibers. It may be concluded that, in my opinion, the use of metallic wire as stay sutures or as tension sutures or to unite divided nerve ends is not beneficial, and the wrapping of a suture line with any metallic substance is contraindicated.

The fourth principle deals with the treatment of what is usually called irreparable nerve lesion. If the severed nerve ends cannot be united because of a large gap in the continuity of the nerve trunk and if, therefore, end-to-end suture is not possible, other surgical procedures are available to insure a good result. It has been proved clinically and experimentally that nerve injuries produced by a stretch mechanism may be just as damaging as the direct severance of continuity by a sharp instrument. This is particularly true of brachial plexus injuries. Why, then, should a peripheral nerve be expected to regenerate if, in order to bridge a large gap, the nerve is stretched by the movements of joints adjacent to the site of injury? As a matter of fact, what is there to stretch in a nerve trunk? Nothing stretches; but structures rupture, and more degeneration results. Furthermore, it has been shown that ischemic necrosis of nerve fibers is caused by wide denudation of the nerve necessary for mobilization and may result in more extensive degeneration and delayed regeneration. To effect any result in a peripheral nerve injury in which there is a loss of substance such that an end-to-end apposition cannot be obtained, the following four possibilities may be considered: (a) the use of an autogenous graft; (b) the use of homogenous graft; (c) the shortening of the limb, and (d) the fixation of joints and the transposition of tendons of uninjured muscles. There is sufficient evidence available, both in experimental laboratories and the human patient, that autogenous grafts made of nerves of similar size to the injured nerve may be successful. Published and unpublished records of peripheral nerve patients show evidence of good functional results after the implantation of autografts. For accurate evaluation of the results it is of utmost importance that the patients be tested by the most exacting tests for determining the regeneration and recovery of a peripheral nerve injury, such as the movement of muscles innervated solely by the injured nerve and the return of pin prick sensation in the isolated area of supply to pin prick of the injured nerve. In my opinion, the use of multiple pieces of nerve graft of smaller caliber than the injured nerve—the so-called cable graft—is less successful in the human patient.

The opportunity to evaluate the use of fresh homogenous graft was lost during World War II when, in amputation and peripheral nerve centers, portions of the nerves of amputated extremities of one person were not used to repair large defects in the continuity of a peripheral nerve in another. A few such operations were carried out, but the results were evaluated after only six months, a time too short to even judge the return of function in a peripheral nerve injury that has been repaired by an end-to-end apposition. The use of autogenous and homogenous grafts have been studied experimentally, suturing a graft into place with fine silk or using the plasma clot technique. It should be mentioned that functionally and microscopically there appeared to be no advantage in using the plasma clot technique in preference to the silk suture method, except perhaps in those cases in which a very small nerve such as a digital nerve is injured and in which no tension in the suture line is present. Dr. Loyal Davis and I have used homogenous nerve grafts on patients followed six months to several years. The grafts were taken from the sciatic nerves of recently amputated extremities or from cadavers soon after death. The functional recovery after the use of homogenous nerve graft in man is distinctly inferior to that obtained under experimental conditions in animals. In all fairness, however, it must be stated that the delay of months or years before grafts were transplanted in all of these cases allowed the muscles to become severely atrophied and contracted, greatly limiting their recovery of function. Experience with homogenous grafts in man has shown that while the functional recovery is minimal and does not compare with that obtained with the use of autogenous grafts, the nerve grafts are not absorbed and are not reduced to fibrous bands.

In certain circumstances, such as fresh comminuted fractures, resection of one or two inches of the humerus has permitted successful end-to-end suture of severely injured nerves without handicapping the patients too severely. In long-delayed cases this method may be the only means of performing an end-to-end nerve suture and should be thought of when several nerves are involved. In the repair of brachial plexus injury resection of a segment or even the entire clavicle helps complete visualization of the plexus and is necessary for the end-to-end suture of the usually-retracted severed nerve segments.

Finally, there are those irreparable nerve injuries in which the nerve ends cannot be apposed and any type of graft is unsuccessful. In these the best possible method of obtaining the greatest amount of function in the affected extremity is the transplantation of tendons and the fixation of joints. As a matter of fact, I am inclined to have tendon transplantations performed after most high injuries of the radial, ulnar, and median nerves and in patients seen a year or several years after injury as an aid to functional recovery after nerve suture. This procedure helps to keep the joints from becoming ankylosed and the muscles contracted or overstretched. Hand and fingers are also kept in a better position of function.

Traumatic lesions that involve parts of the brachial plexus are not uncommon in civilian or military life. They may be the result of penetrating stab or bullet wounds or more commonly are produced by blunt trauma on the side of the neck with the head flexed far to the opposite side and the shoulder depressed. The chief factor is overstretching and traction on one or more components of the plexus produced by any means that force the head and the shoulder apart. The overstretched nerves may rupture at any point from the origin of the roots from the spinal cord to the most distal part of the plexus. Therefore, some fibers may be avulsed, others torn apart within the nerve trunks, and others overstretched. The resulting clinical symptoms are those of complete and incomplete anatomic or physiological lesions that cannot and should not be catalogued according to the early classification of brachial plexus injuries into the upper (Erb) or lower (Klumpke) types. I believe it is far more accurate and practical to determine the extent of the paralysis by careful, detailed examinations of the muscles and then place the level of the lesion by a knowledge of the innervation of those muscles. The progress of recovery could be followed more easily, and a final evaluation of the residual lesion could be made accurately.

The results of the surgical treatment of brachial plexus lesions are, on the whole, not as good as those of peripheral nerves. The distance between the site of the lesion and the muscles and skin involved makes nerve regeneration a slow and prolonged process. Therefore, the end results should not be evaluated finally for several years after repair. It is also obvious that neurolysis and nerve suture performed on the plexus cannot be done as extensively and accurately as on a single peripheral nerve trunk.

The contribution of Pollock and his associates—the question of electrodiagnosis in peripheral nerve injuries applied to the study of recovery before and after surgical repair—cannot be overemphasized, as the electrical signs of recovery antedate the recovery of motion and sensation by many weeks. When a sufficient time after injury has elapsed to permit the development of a state of denervation and the characteristics of denervation are not found by electrodiagnosis, then the nerve may be said to be spontaneously recovering and should not be operated on. Likewise, if after suture of a severed nerve the characteristics of the denervated state are not found it may be assumed with certainty that recovery is taking place. On the other hand, when sufficient time has elapsed after nerve injury for regeneration to have occurred and the characteristics of denervation are found, then the nerve must be operated on.

Finally, the most important principle that affects the results of peripheral nerve surgery and is not sufficiently emphasized is that principle that stresses every effort to keep the effector mechanism in a state in which it may function. It is of little avail to have a perfect microscopic regeneration of a peripheral nerve trunk if the muscles are so atrophied and fibrosed and the joints so fibrosed and ankylosed that they will not move. Such a peripheral nerve suture may be classified as a failure and yet regeneration within the nerve trunk may be perfect. Consequently, the intensive use of physical therapy and all of its adjuncts, electrical stimulation, massage, active and passive movements, and use of proper splinting of the paralyzed extremity or portion of the extremity into a position of relaxation of the paralyzed muscle and of function of the limb is of great importance and cannot be overemphasized. Yet it is one of the factors in peripheral nerve surgery that is most often neglected.

ABSTRACT OF DISCUSSION

Dr. Loyal Davis, Chicago: In the past emphasis has been placed on the wrong factor in discussing the repair of peripheral nerve injuries. Everyone has been talking as to whether the nerve will regenerate. Nerves regenerate any time, any place, when the two ends are in apposition; as a matter of fact, it is rather difficult, experimentally, to keep a nerve from regenerating.

The important thing, therefore, is what Dr. Perret spoke about: that is the care of the effector mechanism. I consider his judgment on the matter to be sound. One cannot expect a hand, finger, or a foot to function if the muscles are atrophied, if the joints are fibrosed or ankylosed, or if the muscles are shortened because it has been allowed to stay in a malposition from the time the nerve was injured.

More attention should be paid to keeping the muscles and joints in condition by all types of physical therapy and electrotherapy so that, when the nerve does regenerate the effector mechanism can work. This explains, in many instances, the failure to accomplish good results after a nerve has been sutured.

Time is an essential factor in the results to be obtained with peripheral nerve surgery. Nerve ends should be sutured and apposed as quickly as possible after the nerve has been divided. I am in complete disagreement with anyone who deliberately delays the apposition of nerve ends.

I am quite aware of those instances in which a nerve cannot be sutured because of the destruction of the nerve, or because of other factors that involve fractures of bones in which the nerve suture must be necessarily delayed because of the circumstances.

But recently it has been stated that the way to get a good result in peripheral nerve surgery is to delay deliberately the union of the nerve. There is not a man in this room who, if when he walked out of the room happened to put his hand through the window and cut his wrist, severing his median nerve, would not want that median nerve sutured promptly.

There are many false ideas about being able to get a nerve together by flexing adjacent joints or extending them, in either case stretching the nerve. As Dr. Perret pointed out, there are great changes in the nerve microscopically, and there is a traumatic degeneration produced in a nerve by stretching that can be shown histologically. All the nerve sutures that were performed during the last war, with a leg in flexion or an arm in flexion and were then stretched out are proving, on follow-up studies, to be absolutely useless.

There arises, then, the question as to how to repair a nerve injury in which there has been large destruction of tissue. Autogenous grafts, in my opinion, are the best method of accomplishing this, but, that is often impossible. It is my opinion that cable autogenous grafts are not particularly effective.

The use of homogenous grafts is still an open question. Physicians missed the opportunity during World War II, when there were amputation centers and peripheral nerve centers in the same hospital, to prove the point whether a fresh homogenous graft would be successful in repairing a large gap in nerve tissue.

There are peripheral nerve injuries that are irreparable as far as repairing the nerve is concerned. Physicians must take advantage of all the operations that have been devised for fixing joints, for shortening tendons, and for placing the hand in the position of function so that the best possible functional results may be obtained.

Dr. Sterling Bunnell, San Francisco: Primary nerve sutures, if properly carried out, give the best results; but if performed by the usual technique, the nerves should be sutured again as soon as the limb is in condition for this. If conditions are not right for primary suture, such as in wounds with crushing and contamination, one stainless steel stitch should be placed to hold the nerve ends together, and a perfect neurorrhaphy should be performed as soon as the wounds have healed.

Similarly, if the wound becomes infected the nerve should be sutured again as soon as possible, because the degree of regeneration is in direct proportion to the accuracy of the union. The union cannot be perfect if done crudely or in the presence of infection.

The urgency of repairing nerves early, before irreversible degeneration and atrophy occur in their distal fragments and in the muscles, should be emphasized even more. Perfect nerve juncture should be accomplished as early as possible. Much muscular damage might well result if two years are allowed to elapse.

Too often attention is given to the fracture or the joint at the neglect of the nerves until too late, but arm nerves and the brachial plexus are hand nerves. Injury of them wrecks the hand, and the hand is the important part of the upper extremity. Therefore, the repair of nerves should have priority; they should be repaired at the time of setting the fracture, or before.

This is so important that, if necessary to get the nerve ends together, the arm should be bent at the fracture, or an ankylosed elbow should be broken up and flexed, so joining the nerve ends will be possible. The bones and the joints that are of lesser importance can be treated later.

Tantalum foil should never be used, and nerve homografts are not of practical value. Autogenous grafts are successful if the grafts are narrow enough to be thoroughly nourished.

This principle applies to any type of graft, nerve or otherwise. This is also why a several-strand cable graft, if properly sutured, is preferable to a single thick-nerve graft. The matter of fastening those cable grafts is a simple matter of technique; they then work beautifully.

The author mentions four ways of overcoming gaps in nerves but does not include the method of freeing the nerves liberally, flexing the joints, and transplanting the nerves so they will span the joints. This point of view was taken because of fear of stretching the nerve when the limb is again extended.

The above principle has been the chief method that I have used in repairing well over 1,000 nerves, and it is successful. A full month is allowed for the nerve juncture to become sufficiently strong.

Then, twice a week, the joints are carefully extended, a little at a time and always short of discomfort. This extension is not done rigidly by turnbuckle or by a series of casts, as this would place the nerve on a stretch. A stretch means either rupture of fibers or ischemia. Ischemia of a nerve is followed by necrosis. To avoid either of these time is given for the nerve to grow longer, not to be stretched longer.

We use the snub method; that is, the degree of each successive extension is snubbed by the splint, but the joints are always free to flex and so ease the tension. This relieves any discomfort from nerves rendered ischemic by overpull. By these methods gaps of up to five inches may be overcome in any of the three main nerves of the arm and four inches in the brachial plexus.

When arm nerves are paralyzed constant attention should be given to the hand to keep the joints supple and in position of function. Sinusoidal exercise helps. The patient should be instructed to keep the joints of the hand in good condition by moving them gently with his other hand. The paralyzed muscles should never be overstretched.

It is not necessary to splint the hand so that the paralyzed muscles are fully relaxed, as was done in World War I and in the beginning of World War II. This rigid and over-splinting will do much damage. All that is necessary is to provide some light, springy, or elastic splint that will exactly counterbalance the muscle imbalance, and no more, so the hand will remain in the position of function. The patient can then engage in occupational therapy and, by using the hand, will keep it in condition until the nerves regenerate.

Dr. Perret, Iowa City: I wish to thank Drs. Davis and Bunnell for their expert discussions. I do not have much to add, as we seem to agree fundamentally. In our experience infected wounds can be sterilized without too much trouble with adequate debridement and with the local and systemic use of today's antibiotics. Thus we have been able to successfully repair nerves in grossly infected wounds that were cleaned out thoroughly and closed tight primarily and which healed without complications.

CLINICAL NOTES

MERCURY LOST IN THE GASTROINTESTINAL TRACT

REPORT OF AN UNUSUAL CASE

Meyer O. Cantor, M.D., Detroit

Since the trend toward mercury-bearing intestinal decompression tubes developed, the innocuousness of the liquid metallic mercury in the gastrointestinal tract again has been observed.[1] A review of the literature upon the subject of bowel obstruction and the role of mercury in its treatment reveals numerous articles beginning with 1676 and appearing until approximately 1850. In these articles many case reports were found extolling the curative effect of liquid mercury in the treatment of bowel obstruction.[2] Judging from the extensive literature that accumulated on this subject during these early years, it would seem that numerous therapeutic properties were ascribed to metallic mercury in overcoming bowel obstruction. These were believed to occur by virtue of the fluidity and weight of this heavy metal, which was supposed literally to force its way through the obstructing process. This form of treatment fell into disrepute about the middle of the 19th century as a result of the observation of Dujardin-Beaumetz[3] that the mercury did not pass down the gastrointestinal tract en masse but became finely divided into small particles which could not exert any pressure effect upon the obstructive process. Despite the fact that the use of mercury fell into disrepute in the treatment of bowel obstruction, a useful objective was obtained. The extensive use of this heavy metal had called attention to its usefulness in the treatment of bowel obstruction, and this paved the way for its subsequent introduction into the end of a tube. In addition, the innocuousness of the mercury when free in the gastrointestinal tract was shown.

In the past two years case reports have appeared describing pathological processes as a result of the presence of this free mercury. Birnbaum[4] reported the development of acute appendicitis as a result of the presence of mercury globules in the appendix. Hoffman,[5] on the other hand, reported the presence within an appendix removed at operation of free metallic mercury which had produced no inflammatory change at all. Lindemuth[6] recently reported a persistent rectal fistula caused by leakage of mercury from an intestinal tube. In this case, healing of the fistula did not occur until the tract and all the mercury in its wall had been excised. It appeared that the metallic mercury acted as a foreign body preventing the spontaneous closure of the fistulous tract. Lindemuth further quoted Chodoff, who reported the escape of metallic mercury from a tube following right colectomy and illeotransversecolostomy. In this case, three intestinal fistulas developed proximal to the anastomosis. At autopsy these fistulas were shown to have adjacent abscesses, each of which contained metallic mercury.

The case report herein presented is rather unusual for two reasons: First, it presents for the first time radiological confirmation of the accuracy of the observation of Dujardin-Beaumetz, and, second, it demonstrates that persistence of fistulous tracts is not the rule as a result of a leakage of mercury.

REPORT OF CASE

A. F., a 35-year-old woman, was admitted to the North Detroit general hospital for treatment of a tubo-ovarian abscess. As a result of the surgical treatment, the colon at the rectosigmoid was opened. The rent in the colon was closed in two layers. The patient had received massive doses of penicillin, phthalylsulfathiazole, and streptomycin prior to and after operation. Despite this, pelvic peritonitis developed. This was then followed by the development of four fecal fistulous tracts in the next four weeks. One fistulous tract opened over McBurney's area; one tract opened below the umbilicus; one opened above the pubis, and one opened in the vaginal vault. During the time that the pelvic peritonitis was being treated, a mercury-bearing intestinal decompression tube was passed to treat the paralytic ileus that resulted from the intra-abdominal inflammatory process. Eight cubic centimeters of mercury had been used in the balloon. The balloon was improperly tied off. This resulted in all the mercury escaping within the gastrointestinal tract. Figure 1 shows well the escape of the free mercury within the gastro-

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From Grace Hospital.

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[2] Ebers, J. J. H.: Ueber den Ileus und seine Behandlung vornemlich durch das lebendige Quecksilber nebst einem wichtigen Krankheitsfalle, J. d. pract. Heilk. Berl., 1829, vol. 68. Zwinger, T.: Mercuri crudi effectus in colica spasmodica a fecum duritie alvum contumaciter obstruente oriunda, Collect. acad. d. mém. **7**:488-491, 1766. Crommelinck, C.: Volvulus intestinal: guérison par le mercure métallique, Ann. Soc. de méd. d'Anvers. **14**:1840.

[3] Dujardin-Beaumetz, G.: Diseases of Stomach and Intestines, Baltimore, William Wood & Company, 1886.

[4] Birnbaum, W.: Inflammation of the Vermiform Appendix by Metallic Mercury, Am. J. Surg. **74**:494-496 (Oct.) 1947.

[5] Hoffman, I. L.: Spontaneous Evacuation of Metallic Mercury from Vermiform Appendix, Bull. U. S. Army M. Dept. **8**:802-803, 1948.

[6] Lindemuth, W. W.: Fecal Fistula Due to Metallic Mercury, J. A. M. A. **141**:986-987 (Dec. 3) 1949.

intestinal tract. In this figure one notices large masses of metallic mercury. Seven days later, roentgenograms showed the mercury to be finely divided into particles which beautifully outlined the entire colon as effectively as though barium sulfate had been given. Only two small masses of mercury remained intact. Figure 2 shows the fine dispersion of the mercury within

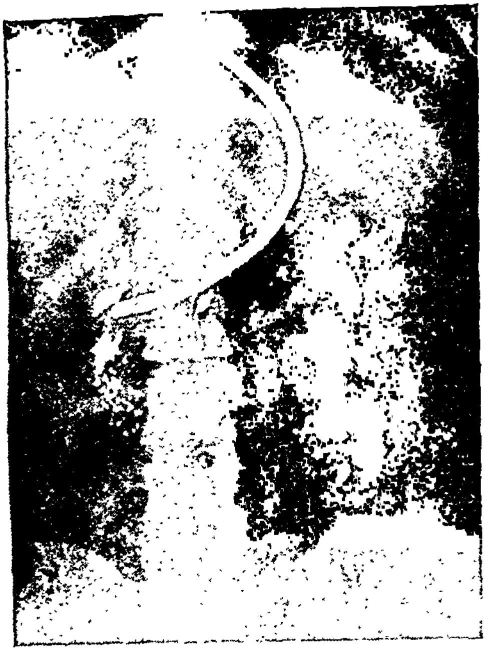

Fig. 1.—Masses of metallic mercury resulting from leakage of 8 cc. of metallic mercury from the balloon of an intestinal tube.

the colon. A barium enema showed, as seen in figure 2, that there was complete obstruction at the rectosigmoid. The fistulous tracts began just above the point of obstruction, exactly at the spot at which the dispersion particles of mercury and the barium

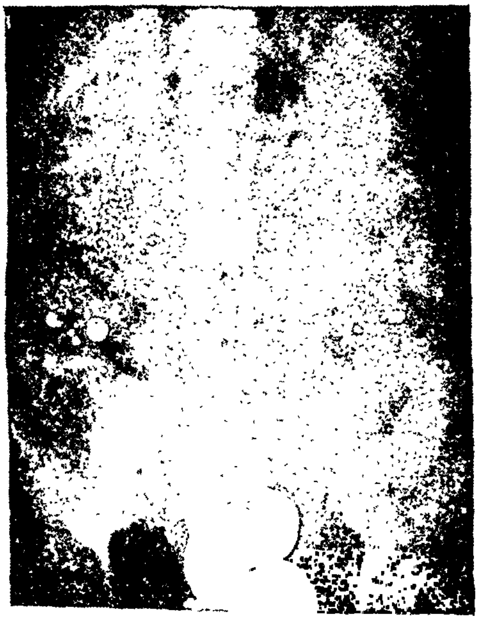

Fig. 2.—Fine dispersion of metallic mercury particles in the right, middle, and left colon. Barium enema shows obstruction at rectosigmoid.

met. On the 20th day, in order to be certain that the fistulous tracts had their origin at the rectosigmoid, a radiopaque catheter was passed through one of the fistulous tracts, and 100 cc. of a very dilute barium suspension was injected. Figure 3 shows well that the entire right, middle, and left colon up to the rectosigmoid were visualized. Below the rectosigmoid there was no visualization because of the colonic obstruction at this point. One notices that, in figure 3, only a very small amount of metallic mercury remained. From its position, it would appear that this small amount of mercury had found its way through the vaginal fistulous tract and through the tract in McBurney's area. During the course of these four weeks globules of mercury were excreted through the fistulous tracts from time to time. On the 22d day after figure 1 was taken a defunctionizing colostomy was done to divert the fecal stream. As a result, the fistulous tracts began to close within a week. In two months all four tracts had completely closed.

SUMMARY

This case report presents radiological confirmation of the accuracy of the observation of Dujardin-Beaumetz almost 100 years ago. The mercury was so finely divided that it delineated the entire colon almost as well as barium. Four fistulous tracts developed as a result of injury to the colon. Metallic mercury was excreted through these tracts. Defunctionizing colostomy resulted in a rapid closure of these tracts. At the end of two months the closure of all four tracts was complete.

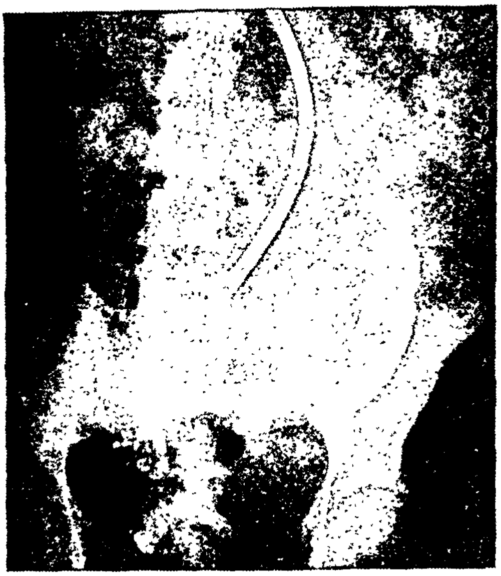

Fig. 3.—Radiopaque catheter inserted into one fistulous tract, and dilute barium injected. Note small amount of metallic mercury remaining in pelvis and in right lower quadrant. This film was taken 20 days after figure 1.

CONCLUSIONS

A roentgenological presentation of the dispersion of metallic mercury within the gastrointestinal tract is given. Such fistulous tracts do not necessarily remain persistent because of the presence of metallic mercury within the bowel. For persistence of fistulous tracts to occur, the mercury must become trapped within the tract and there act as a foreign body.

666 Maccabees Building.

The First Great Pyramid.—Imhotep was the Grand Vizier, Chief Justice, and Physician to King Zozer, and as a side-line he was also architect of the first great Pyramid at Sakkara. He was the first great man combining the sciences of law and medicine; he might, if you wish, be described as the first medicolegal expert. Unfortunately Imhotep became a god, and it is one of the weakness of Egyptian medicine that the methods of treatment became largely empirical and irrational through the influence of tradition, heavily overlaid with an aura of divinity and magic.—Sir Sydney Smith, the History and Development of Forensic Medicine, *British Medical Journal,* March 24, 1951.

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NURSING HOMES

Nursing homes have had an unprecedented growth in the past 10 years. This growth has been in response to an urgent need. Although the need probably has always existed, the demand for nursing home care was greatly increased by the Old Age Assistance Program in 1935, which made it possible to grant federal and state assistance to the aged in their own homes or in private institutions such as nursing homes. Other important factors have been the increase in the number of older persons, the shortage of general hospital beds, the general housing shortage since World War II, and the lack of other facilities for the chronically ill and for the homeless aged.

Nursing homes now provide a variety of types of care. These include substitute home or boarding home care, convalescent care, care for the aged and for the chronically ill. The services required vary from minimal help to an ambulant infirm aged person to continuous nursing care for patients bedridden because of chronic disease.

The Commission on Chronic Illness [1] reports that it is becoming more apparent that nursing homes should not remain isolated units, but should be brought into a comprehensive chronic illness program serving the community. They need the help of medical societies and other community organizations to use community services and affiliate with hospitals to bring more medical care, rehabilitation, and a fuller social life to their patients.

This can be done through such methods as the establishment of a central information service for the chronically ill in the community; contacts with community agencies and churches, and the development of a direct connection between nursing homes and hospitals, with hospitals providing guidance, consultation, and special services as needed.

The essential role of nursing homes in a well-rounded community plan for the care of the chronically ill should be recognized. Community efforts should be directed to the establishment and maintenance of good standards of care and, since most nursing homes are commercial enterprises, fee scales that will keep these facilities within the financial reach of all who need them and at the same time provide the nursing home operators with a reasonable financial return.

Licensing of nursing homes can be a positive force—and a help to all—if it is based on practical, desirable and realistic standards. There should be licensing or accrediting laws in all the states, and these laws should be administered with the objective of giving services to the operators, the patients, and the public. A powerful incentive to the passage and administration of such laws is contained in Public Law 734, 81st Congress, which amends the Social Security Act to require, beginning July 1, 1953, that, if payments of old age assistance, aid to the blind, and aid to the permanently and totally disabled are made to persons in public or private institutions, federal funds will be available only if there is a "State authority or authorities . . . responsible for establishing and maintaining standards for such institutions."

The funds to pay for reasonable costs of care in nursing homes must be made available. State and local departments of welfare must be concerned with providing sufficient funds to insure at least minimum standards of good care for the indigent chronically sick. It seems paradoxical that that portion of the sick population least able to pay for care—the chronically ill—should be left largely unprovided for by community-supported institutions and programs. Nevertheless, private nursing homes have developed in response to a need which was not otherwise being met. It is reasonable to suppose that there will always be a place for private nursing homes which offer good services at a reasonable cost. In the recently published study of the needs of terminal cancer patients made by the Chicago Central Service for the Chronically Ill,[2] it is revealed that, in those cases in which significant amounts of help must be employed for the care of the patient, the cost of care at home is greater than the cost in facilities such as nursing homes.

The function of the nursing home, and of all institutions and agencies providing services to the chronically ill, is not only to give care but to see that patients are physically or vocationally rehabilitated if possible.

Good and continuous medical supervision is essential for the chronically ill, just as for all others who are ill. When it is necessary for patients to move to and from the nursing home and the hospital or to his own home, continuity of medical supervision cannot always be assured. Although consultation and specialist services may be needed from time to time through the course of his illness, the patient should have one physician to whom he can look for guidance on continuing care. Medical societies can work with nursing homes, community agencies and hospitals to develop medical-social programs that would be aimed at preventing gaps in medical service for patients whose requirements for care result in frequent moves from hospital, to home, to nursing home—and from nursing home to nursing home.

A growing awareness of these and other problems of chronic illness is reflected in recent reports on chronic illness activities by medical societies in 20 states. Cooperation with community groups and nursing home operators could be an important field of action for the medical society chronic illness committees that have been already established, and the many new committees that will be formed as guidance and leadership by the medical profession is provided in the development of better care for the chronically ill.

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[1] Levin, M. L.: Nursing Homes—Their Part in the Community's Attack on Chronic Illness, Chronic Illness News Letter vol. 2, no. 2 (Feb.) 1951.

[2] Terminal Care for Cancer Patients, Chicago, The Central Service for the Chronically Ill of The Institute of Medicine of Chicago, 1950. p. 4.

AUREOMYCIN AND ANTACIDS

Aureomycin, the yellow antibiotic substance produced by the actinomycete Streptomyces aureofaciens, has had extensive clinical use since its discovery by Duggar in 1948.[1] It has a wide spectrum of chemotherapeutic activity, and its use is accompanied by a relative lack of harmful effects. Aureomycin is effective not only against many gram-positive and gram-negative bacteria, including penicillin-resistant and streptomycin-resistant strains, but also against Rickettsia and certain viruses. Furthermore, organisms show little tendency to develop resistance to aureomycin.

Intramuscular injection of aureomycin results in local irritation, unpredictable blood levels and unsatisfactory therapeutic results.[2] Oral administration results in satisfactory therapeutic results but is accompanied by high incidence of gastrointestinal upsets, including loss of appetite, nausea, vomiting and epigastric pain. Effects directed toward reduction of these gastrointestinal upsets include the use of more purified preparations and administration with adjuncts such as gastric antacids and milk. The effectiveness of an aluminum hydroxide gel preparation in relieving aureomycin-induced nausea was first reported by Schoenbach, Bryer and Long [3] in 1948, but at this time techniques were not available for studying the effect of this antacid on the aureomycin blood level. The following year, Di Gangi and Rogers, using both colorimetric and bacteriologic assay methods, showed that aureomycin in vitro was adsorbed onto aluminum hydroxide gel.[4] At the same time, Waisbren and Hueckel [5] studied the effect of aluminum hydroxide gel on the aureomycin blood levels of six normal male subjects and five hospitalized patients receiving 500 mg. of aureomycin every six hours. When approximately 30 cc. of aluminum hydroxide gel was administered immediately after each dose of aureomycin, the blood levels of aureomycin in 10 of the subjects fell from an average of about 5 micrograms per milliliter to less than 1 microgram per milliliter. One of the 10 patients suffered a recurrence of a urinary tract infection with the combined treatment, which promptly subsided when administration of aluminum hydroxide was discontinued. Confirmatory evidence that aluminum hydroxide gel may interfere with the absorption of aureomycin from the gastrointestinal tract is provided by the reports of Seed and Wilson [6]; Boger, Matteucci, Beatty and Baganz [7]; Bartholomew and Nichols [8]; Michel, Sayer and Kirby [9]; Greenspan, MacLean, Milzer and Necheles,[10] and Williams and Weekes.[11] On the other hand, Bartholomew and Nichols showed that the administration of milk with aureomycin reduced the incidence of gastrointestinal irritation and vomiting without lowering aureomycin plasma levels. In addition, Greenspan and his co-workers showed that the polycarboxylic acid antacid, sodium carboxymethyl cellulose, did not adsorb aureomycin in vitro or interfere with absorption of the antibiotic from the intestine, while the report of Williams and Weekes indicates that mucin-aluminum hydroxide-magnesium trisilicate reduces the nausea and vomiting incident to aureomycin administration without lowering the blood level of the drug.

It would thus appear that antacid therapy and systemic aureomycin therapy may be undertaken simultaneously, provided it is known that the antacid used does not affect the serum levels of the aureomycin. For gastrointestinal infections, administration with an adsorbing antacid might result in higher or more prolonged local concentrations of the drug. In many instances, however, the use of milk appears to be a simple, cheap and effective method of reducing the incidence of gastrointestinal upsets accompanying aureomycin therapy without interfering with the absorption of the drug from the gastrointestinal tract.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

The semiannual listing of postgraduate continuation courses for physicians, covering the period July 1 to Jan. 15, 1952, appears elsewhere in this issue. These data prepared as a regular service by the Council on Medical Education and Hospitals list 873 courses varying in length from a few days to several months. Some are concentrated full time courses and others are part time. There are opportunities for the physician in general practice as well as the specialist. In addition, a series of courses for military personnel at medical installations are included. Courses are being given in 32 states and in the District of Columbia. The subjects embrace 46 major areas in the field of clinical medicine and the basic sciences. Noteworthy among the courses listed are the opportunities offered for the physician in general practice. Medical schools, state medical societies, hospitals, state and city boards of health, and special societies continue to be active in developing this type of continuation training.

One hundred and seven agencies are participating in sponsoring the courses in this listing, including 37 medical schools, 17 special medical societies, 13 hospitals, 12 graduate schools of medicine and graduate assemblies, 7 state chapters of the American Academy of General

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1. Duggar, B. M.: Aureomycin: A *Product* of the Continuing Search for New Antibiotics, Ann. New York Acad. Sc. **51**: 177 (Nov. 30) 1948.

2. Gocke, T. M.; Wells, E. B.; Collins, H. S., and Finland, M.: Blood Levels and Urinary Excretion of Aureomycin After Intravenous and Intramuscular Administration, J. Lab. & Clin. Med. **36**: 100 (July) 1950.

3. Schoenbach, E. B.; Bryer, M. S., and Long, P. H.: The Pharmacology and Clinical Trial of Aureomycin: A Preliminary Report, Ann. New York Acad. Sc. **51**: 267 (Nov. 30) 1948.

4. Di Gangi, F. E., and Rogers, C. H.: Adsorption Studies of Aureomycin Hydrochloride on Aluminum Hydroxide Gel, J. Am. Pharm. A. (Scient. Ed.) **38**: 646 (Dec.) 1949.

5. Waisbren, B. A., and Hueckel, J. S.: Reduced Absorption of Aureomycin Caused by Aluminum Hydroxide Gel, Proc. Soc. Exper. Biol. & Med. **73**: 73 (Jan.) 1950.

6. Seed, J. C., and Wilson, C. E.: The Effect of Aluminum Hydroxide on Serum Aureomycin Concentrations After Simultaneous Oral Administration, Bull. Johns Hopkins Hosp. **86**: 415 (June) 1950.

7. Boger, W. P.; Matteucci, W. V.; Beatty, J. O., and Baganz, H. M.: Aureomycin Plasma Concentrations Influenced by Aluminum Hydroxide, J. Philadelphia Gen. Hosp. **1**: 3 (Jan.) 1950.

8. Bartholomew, L. G., and Nichols, D. R.: Use of Milk to Control Vomiting Caused by Aureomycin, Proc. Staff Meet., Mayo Clin. **25**: 370 (June 21) 1950.

9. Michel, J. C.; Sayer, R. J., and Kirby, W. M. M.: Effect of Food and Antacids on Blood Levels of Aureomycin and Terramycin, J. Lab. & Clin. Med. **36**: 632 (Oct.) 1950.

10. Greenspan, R.; MacLean, H.; Milzer, A., and Necheles, H.: Antacids and Aureomycin, Am. J. Digest. Dis. **18**: 35 (Jan.) 1951.

11. Williams, M. L., and Weekes, D. J.: The Effect of Antacid Preparations on Serum Aureomycin Levels, Rev. Gastroenterol. **18**: 128 (Feb.) 1951.

Practice, 6 schools of public health, 5 state medical societies, 4 county medical societies, 4 government agencies, and 2 health departments.

Institutions offering this type of training are invited to announce such courses in the Council's semiannual listing.

EXAMINATION AND CERTIFICATION OF PROSTITUTES

On two occasions the American Medical Association has declared its position with regard to the medical examination and certification of prostitutes. In 1942 the Association's House of Delegates passed and in 1945 the House reaffirmed the following statement:

> First, that the control of venereal disease requires elimination of commercialized prostitution; second, that medical inspection of prostitutes is untrustworthy, inefficient, gives a false sense of security and fails to prevent the spread of infection; third, that commercialized prostitution is unlawful, and physicians who knowingly examine prostitutes for the purpose of providing them with medical certificates to be used in soliciting are participating in an illegal activity and are violating the principles of accepted professional ethics.[1]

The American Social Hygiene Association, as a result of field studies made during the past two years, has reported to the American Medical Association that, while great progress has been made, there is a small number of physicians in the few cities still tolerating commercialized prostitution who continue periodically to examine prostitutes and provide them with certificates for use in soliciting trade. With military and industrial mobilization for national defense now in progress, it may be desirable to review the reasons that led the American Medical Association to declare such practices unethical.

Prostitution itself and aiding or abetting prostitution are unlawful in all but one state. The physician who examines prostitutes and gives them certificates implying freedom from venereal diseases is a collaborator in an unlawful racket. He aids a business which degrades morals, causes corruption and spreads dangerous infections and which is carried on for profit distributed 20 per cent to the prostitute and 80 per cent to her exploiters. The doctors' fees come out of the 80 per cent assigned to the exploiters.

The fact that the prostitution racket can, in a few places, be carried on apparently under the respectable mantle of medical supervision makes the task of law-enforcement officials more difficult, because physicians appear to be taking responsibility for preventing the spread of venereal diseases by the prostitutes whom they inspect. The general public in such communities is influenced by the example of the physician who examines and certifies the women and girls engaged in prostitution. Citizens assume that, if a doctor examines the "girls on the line," he must consider it right to have a "line" and that, being a doctor, he knows about such things. Local citizens, therefore, may not support or insist on the enforcement of the laws against prostitution.

Prostitutes and their agents want "health cards" for their value in attracting trade. They know ignorant prospective customers will believe that, because a doctor examined a woman and certified her as "blood test negative, smear negative," they may have sexual relations without risk of infection. A familiar sales talk of the pimps and madams is: "Our girls are all clean. Our doctor examines each one every two weeks. You'll find the doctor's certificates right in the girls' rooms." A feeling of security absolutely unwarranted by medical facts is given by the doctor's certificate. Between examinations a prostitute must have an average of 10 sexual contacts per day in order to pay expenses. Even if really free from any infectious disease at the time of the doctor's examination, a prostitute may become a carrier of disease with her first postexamination contact or any subsequent contact. Even if she were examined daily, no reliable assurance could be given that a prostitute would not spread venereal diseases.

Before a conscientious physician could express a valid opinion regarding the presence or absence of one or more venereal diseases in a woman who by occupation is many times daily exposed to the probability of infection, he would be required to make, at least daily, careful clinical examination including inspection of all skin and accessible mucous membrane surfaces. He must in all cases take blood for serologic tests for syphilis and specimens from at least four sites for spreads and cultures for the gonococcus. Any lesion of the skin or mucous membrane, especially of the genital, anal and oral regions, must be regarded with great suspicion and carefully examined. This would require biopsies and spreads for Donovan bodies of granuloma inguinale and spreads for Ducrey's bacillus. Most important, every suspicious lesion must be examined, repeatedly if necessary, by the dark field method for Treponema pallidum. Skin tests for lymphogranuloma venereum and chancroid may be indicated. The initial examination would require 30 to 60 minutes of the doctor's time. The total cost would be \$35 to \$50 for private medical and laboratory services. If any suspicious lesions were found, it might be a week or more before the physician could offer a valid scientific opinion regarding the presence or absence of venereal diseases. If no lesions were discovered, the physician should still suspect that he had overlooked one too small to be seen easily.

Obviously no such thorough examinations and, if necessary, follow-up observation of prostitutes are or can be made anywhere in the United States or abroad, but any less careful study is unworthy of the medical profession, even if there were no other compelling reasons for refusing to be a party to the prostitution racket.

The policy of the federal government, stated in the "Eight Point Agreement" signed by representatives of the Department of Defense and the Federal Security Agency, calls for the repression of prostitution, especially where the health and welfare of the nation's fighting men—many of them minors—are involved. No less important is the protection of the youth of the nation outside the armed forces. Patriotic motives, as well as a decent respect for medical ethics and law, should lead those few physicians who have been cooperating with prostitution rackets immediately to cease examining and certifying the unfortunate women who are exploited in a vicious and cruelly selfish traffic.

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[1] Resolution on Control of Venereal Diseases, New Business, J. A. M. A. **119:** 656 (June 20) 1942.

ORGANIZATION SECTION

DR. LEVIN RETURNS TO NEW YORK

Dr. Morton L. Levin, who has directed the program of the Commission on Chronic Illness on a leave of absence from the New York State Department of Health, has been recalled to his position as assistant commissioner for medical services and will return to Albany early this summer, it was announced by Mr. Leonard W. Mayo, chairman of the commission. During the year of Dr. Levin's directorship, the commission's education-research program has made rapid strides. Two studies of prevalence of chronic illness were initiated, one in a rural area and another among city dwellers. The rural study is now being launched in New Jersey by the Hunterdon (N. J.) Medical Center. The study will be carried out by Dr. Ray Trussell, medical center director, with a $60,000 grant from the Commonwealth Fund and plans developed by the commission.

The Commission on Chronic Illness is composed of 33 persons, professional and lay, interested in the problem of chronic illness. It was founded in May, 1949, as the result of the coordinated efforts of four national organizations, the American Hospital Association, the American Medical Association, American Public Health Association, and the American Public Welfare Association.

CIVIL DEFENSE PICTURE ADDED TO A. M. A. LIBRARY

The American Medical Association is one of the first organizations to receive prints of "Survival Under Atomic Attack," the first of a series of official Civil Defense Administration motion pictures. It deals with action the individual can take to protect himself in the event of attacks that may come either with or without warning. The film is black and white, sound, 16 mm., and runs nine minutes. It is available from the Committee on Medical Motion Pictures at a service charge of $1.00 plus transportation.

MEDICAL LEGISLATION

FEDERAL

Child Life Research

A bill to provide for research in child life, H. R. 4094, was introduced by Representative Elliott of Alabama. It would authorize 7½ million dollars annually to enable the federal security administrator to conduct and foster research in child life. Funds could be expended in grants-in-aid to schools and other public or nonprofit agencies. The bill is identical with S. 676, previously reported in The Journal.

Physically Handicapped Children's Education

Representative Kelley of Pennsylvania introduced H. R. 4136, which would enable the states to make more adequate provision for special services required for the education of physically handicapped children of school age. The bill proposes an appropriation of 4 million dollars for fiscal year 1952, gradually increasing the annual appropriations to 16 million dollars by 1955. This bill is identical with a previously reported bill, S. 1463.

Maternity Benefits for Wives of Servicemen

H. R. 4176, introduced by Representative Mitchell of Washington, proposes to establish a program of grants-in-aid to assist the states to provide maternity and infant care for the wives and infants of enlisted members of the armed forces during the present emergency. This bill would set up an Emergency Maternal and Infant Care program similar to the one in effect during World War II. An identical proposal was introduced earlier in the Senate as S. 1245, which has been previously reported.

STATE

Alabama

Bills Introduced.—H. 215, proposes that every person engaged in any business, vocation, occupation, calling, or profession enumerated in the bill shall pay a license fee in amounts specified. The bill enumerates physicians and other professions and the license fee varies from $15 to $100, depending upon the gross annual receipts of the individual's practice. S. 147, proposes regulations for the sterilization of mentally inferior or mentally deficient or feeble minded inmates in the Partlow State School for Mental Deficients.

Delaware

Bill Enacted.—H. 443, was approved May 14, 1951. It empowers the Medical Council of Delaware, by general regulation or specific orders, to issue temporary emergency certificates, said temporary certificates to be limited to twelve months duration, renewable at the discretion of the issuing authority, to such physicians and dentists licensed in another state as they shall find qualified to practice as such in the state during an emergency. The holder of this temporary certificate shall be privileged during the term specified therein to practice his profession in the state subject to such regulations, restrictions, and area limitations as the Medical Council may impose.

Florida

Bills Introduced.—H. 302, proposes the enactment of a new law regulating the practice of registered and practical nursing. H. 383, to amend the law relating to dealing in dead bodies, proposes that nothing in such law should be construed to prohibit the obtaining, dissecting, using and disposing of dead bodies for the purpose of teaching or other appropriate university research by any medical school, dental school, school of nursing or other university research or teaching unit which is a part of a regularly established or chartered institution of higher learning in the state. H. 1047, proposes that all citizens and tax payers of Bay County, Florida, shall have the right to be admitted to any hospital supported in whole or part by taxes and in the management of such hospital no discrimination shall be made against any physician or surgeon, provided such physician or surgeon has been admitted to the general practice of medicine or surgery under the laws of the state and all such physicians or surgeons shall have equal privileges in treating patients in such hospitals. H. 1059, proposes to authorize the state board of education to grant licenses to psychologists. A person practices psychology, under this proposal, when he renders to individuals or to the public any service involving the professional application of recognized principles, methods and procedures of the science and profession of psychology or when he holds himself out as being able to, or undertakes by whatever means to evaluate, appraise or classify mental abilities, personality characteristics, or personal or interpersonal maladjustments, or to perform psychological reeducation, psychological readjustment, psychological guidance, or counseling. Nothing in the proposal would permit a licensee to perform any physical or medical examination or to administer any physical or medical treatment. S. 712, proposes to direct the Board of Commissioners of State Institutions to select an advisory committee to study and survey possible State Hospital sites in the Tampa-Bay area and the lower east coast for the purpose of recommending a specific site for the construction of two branches of the Florida State Hospital. S. 775, proposes the creation of a Florida state board of electrolysis examiners and defines electrolysis as the method of removing superfluous hair from the human body by means of the application of an electrical current to the hair papilla, warts and benign growths by means of a needle or needles to cause decomposition of the hair-papilla and thus permanently remove the hair. S. 797, proposes to acquire practitioners of medicine, surgery, osteopathy, chiropractic, naturopathy, etc., to place a sign in a conspicuous place at the entrance to his office indicating the particular kind or branch of the medical or material healing art which he is licensed to practice. The proposal would further require that every sign showing the word "Doctor," "Dr." or "Physician" or any abbreviation thereof, shall indicate the person's name and the branch of healing arts which such person represents. S. 798, relating to naturopathy, proposes to require annual registration of naturopaths and further proposes to define naturopathy as the use and practice of psychological, mechanical and material health sciences to aid in purifying, cleansing and normalizing human tissues for the preservation or restoration of health, according to the fundamental principles of anatomy, physiology and applied psychology. Naturopathic practice shall employ and embrace the use of light, air, water, clay,

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The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

heat, rest, diet, external applications, mechanical and electrical appliances, suggesto-therapy, hydrotherapy, zone therapy, hygiene, first aid and sanitation; provided, however, that nothing in the proposal would be held or construed to authorize any naturopath to practice materia medica, surgery, or chiropractics or to prescribe or administer hypnotic or narcotic drugs.

Bill Enacted.—H. 95 became Law Without Approval May 9, 1951. It authorizes the **state board of medical examiners** to appoint or employ an assistant secretary or secretaries who need not be licensed physicians and to fix the salary of such assistants.

Illinois

Bills Introduced.—H. 950, to amend the law relating to chiropody, proposes to authorize the use of the **injunctive process** to enforce the provisions of the Chiropody Act. H. 953, to amend the law relating to pharmacy, proposes to authorize the use of the **injunctive process** to enforce the provisions of the Pharmacy Act. H. 954, to amend the law relating to nursing, proposes to authorize the use of the **injunctive process** to enforce the provisions of the Public Health Nursing Act. H. 959, to amend the law relating to the practice of medicine, proposes to authorize the use of the **injunctive process** to enforce the provisions of the Medical Practice Act. S. 598, to amend the law relating to a Medical Practice Act, proposes that one member of the **Medical Examining Committee** shall be an osteopath and one shall be a chiropractor and that in appointing such members due consideration shall be given to the recommendations of representative, osteopathic and chiropractic organizations.

Bills Enacted.—H. R. 45 was adopted March 28, 1951. It resolves that the **Hadacol Company** be notified that it is neither in the best interest of the people of the State of Illinois nor to the advantage of the manufacturer of Hadacol to use testimonials of young children to advertise a product of such a nature. S. R. 53, was adopted May 10, 1951. It provides for the appointment of a special committee to study the need for the establishment of a hospital in Chicago for the treament of **acute mental patients**, especially those addicted to the habitual use of narcotics and alcohol. S. R. 60, was approved May 16, 1951. It resolves the creation of a special committee to investigate the reasons why the City of Chicago, despite its need for additional beds for the treatment of **tuberculosis**, has not and does not use the facilities of the Municipal Contagious Disease Hospital for the treatment of such citizens.

Maine

Bill Enacted.—S. 243, was approved April 27, 1951. It amends the law relating to the Board of Registration in Medicine by authorizing such board to issue **reciprocity certificates** under certain circumstances.

Maryland

Bill Enacted.—H. 512 has become Chapter 701 of the Laws of 1951. It requires the **annual registration** of chiropractors.

Michigan

Bill Introduced.—H. C. R. 65, proposes the creation of a special committee to study the laws of the state governing **drug addicts** and to report their findings and recommendations.

Minnesota

Bills Enacted.—H. 113 has become Chapter 672 of the Laws of 1951. It provides for the creation of a **state board of examiners of psychologists.** H. 1585 has become Chapter 479 of the Laws of 1951. It authorizes the State Board of Medical Examiners to license and regulate the practice of **physical therapy**, which is defined to mean the treatment of any bodily or mental disorder of any person by the use of the physical, chemical, and other properties of heat or cold, light, water, electricity, massage, mechanical devices, and therapeutic exercise, which includes posture and rehabilitation procedures, provided, however, the use of roentgen rays and radium for diagnostic and therapeutic purposes, and the use of electricity for surgical purposes, including cauterization, shall not be authorized under the term "physical therapy."

Missouri

Bills Introduced.—H. 486, proposes the establishment as soon as possible of a full and complete **four year course of medical and surgical instruction** in the state under the direction and control of the Board of Curators of the University of Missouri. H. 490, proposes the creation and establishment under the direction of the division of mental diseases of a state hospital for the care, treatment and rehabilitation of **chronic alcoholics.** S. 214, proposes the creation of a state board of examiners in psychology to grant certificates to **certified psychologists** and **certified psychotechnicians.**

New Hampshire

Bill Enacted.—S. 16 has become Chapter 27 of the Laws of 1951. It amends the medical practice act by, among other things, authorizing the Board of Medical Examiners to issue **temporary five year licenses** to alien physicians who had taken out their first citizenship papers and are otherwise qualified for a license. If the alien becomes a citizen during the five years, he shall be issued a permanent license.

New Jersey

Bill Enacted.—A. 1, has become Chapter 69 of the Laws of 1951. It provides regulations for the establishment of **consolidated local health districts and county local health districts.**

Ohio

Bill Introduced.—S. 266, proposes the creation of a **state naturopathic board of examiners** and defines naturopathy as a system of drugless treatment of disease by methods that simulate or assist nature, including phytotherapy, dietetics, physical, mechanical, hygenic, and sanitary methods, essential to the preservation of health.

Oklahoma

Bill Enacted.—H. 241, was approved April 25, 1951. It provides regulations for the licensing of institutions desiring to obtain **animals from established dog pounds** for the purpose of investigation or instruction concerning the structure or functions of living organisms, the causes, preventions, control, or cure of diseases or abnormal conditions in human beings or animals.

Pennsylvania

Bills Introduced.—H. 1084, proposes regulations for making available to licensed institutions **unclaimed and unredeemed dogs** and cats in public pounds for scientific investigation experiment or instruction. H. 1102, proposes to grant to **hospitals a lien** on rights of action and counterclaims that any person admitted to such hospitals for care and treatment of personal injuries shall have against any other person on account of such injuries. The extent of such lien would be the amount of the reasonable charges of the hospital for the care and treatment of such person. H. 1137, proposes an appropriation for the general maintenance and operation of the Western State **Psychiatric Institute** and Clinic by the University of Pittsburgh. H. 1139, to amend the law relating to osteopathy, proposes to increase the **annual registration fee** from three to five dollars. H. 1192, proposes to amend the **definition of chiropody** so that such practice would not include the amputation of the leg, foot, or toes or the treatment of systemic diseases of the bones, ligaments, or muscles of the feet or any part of the body. H. 1205, proposes to authorize the State Department of Health to issue licenses to persons desiring to operate a **clinopathologic laboratory** which is defined as a place, establishment or institution operated by one or more individuals for the study of blood, urine, feces, and other secretions and excretions and parts of the human body such as tumors removed for examinations in connection with the study of possible diseases in the living patient. S. 559, proposes an appropriation to the Department of Health for the operation, maintenance and purchase of equipment of the Institute of **Cancer Research** Incorporated. S. 635, proposes that in any prosecution for a violation of the law relating to **driving a vehicle while under the influence of intoxicating liquor** the amount of alcohol in the defendant's blood at the time alleged as shown by chemical analysis of the defendant's blood urine, breath or other bodily substance shall give rise to certain presumptions as to whether or not the person is guilty of the charge. The proposal would also provide that operating a motor vehicle while under the influence of any narcotic or habit producing drug shall be a crime .

Bill Enacted.—H. 719 was approved May 10, 1951. It provides a deficiency appropriation to assist State-aided medical and surgical hospitals in meeting the cost of **training student nurses.**

Rhode Island

Bills Enacted.—H. 748, was approved May 3, 1951. It provides for the creation of a special committee to make a study of the feasibility of setting up a **medical school at Rhode Island State College.** H. 752, was approved May 1, 1951. It provides for the creation of a **division of alcoholism** to promote or conduct educational and preventive programs relating to alcoholism.

Texas

Bills Introduced.—H. C. R. 108, would resolve that the House go on record as requesting this Board of State Hospitals and Special Schools to take the necessary steps to meet the **minimum standards required** in order to qualify the said hospitals and special schools operated by the State of Texas to the necessary standards for residency, intern and nurses training programs so that the patients of the said hospitals and special schools be given the highest type of medical care and treatment possible. H. 798, proposes regulations which would authorize adjoining cities, towns and villages to jointly establish, erect and equip **hospitals.**

Bill Enacted.—H. 111, was approved May 10, 1951. It provides, among other things, that all practitioners of the healing art shall indicate on any sign, pamphlet, letterhead or the like, a **designation of the system of the healing art** which such individual is licensed to practice.

Wisconsin

Bill Introduced.—S. 795, relating to the disposition of **dead bodies**, provides that if a corpse is found in the Mendota state hospital district then the University of Wisconsin shall be notified that it may have such corpse; if the corpse is in the Winnebago state hospital district, that Marquette university or any accredited school of mortuary science at Milwaukee shall be notified that it may have such corpse.

Bill Enacted.—A. J. R. 74 was adopted May 4, 1951. It directs the education committee of the legislative council to make a survey of **sanitation and safety in the public schools.**

MEDICAL NEWS

COLORADO

Summer Clinics at Children's Hospital.—The annual summer clinics of Children's Hospital, Denver, will be held June 20-22. The guest speakers are Dr. Alexis F. Hartmann, pediatrician, St. Louis; Dr. Herbert E. Coe, pediatric surgeon, Seattle, and Dr. Douglas N. Buchanan, pediatric neurologist, Chicago. Each guest speaker will conduct a two-hour clinic on one of the three days, give a lecture on a subject of general interest within his field, and appear with staff members and guests in panel discussions of pertinent subject matter of common interest and concern to all physicians interested in the care of infants and children. In addition, the guest speakers and staff members will take part in a question-and-answer period after luncheon on each of the three days. Further information concerning the clinics may be had, and registration for the clinics may be accomplished, by calling or writing to the chairman at the hospital.

CONNECTICUT

Outbreak of Trichinosis.—Dr. James C. Hart of Hartford, a member of the state department of health, has reported to the U. S. Public Health Service a family-group outbreak of trichinosis in Bridgeport. Homemade Italian sausage prepared with ham purchased from a large packing house was eaten by the family on April 4. Symptoms appeared 12 days later in the father, mother, two daughters, and a daughter-in-law. Nausea, diarrhea, vomiting, and swelling of the eyelids preceded the onset of muscular pains in each case.

GEORGIA

State Medical Election.—The Medical Association of Georgia at its annual session in Augusta in April installed Dr. William F. Reavis of Waycross as president. Other officers include: Dr. Cornelius F. Holton, Savannah, president-elect; Dr. David H. Poer, Atlanta, secretary-treasurer, and Dr. Charles H. Richardson Sr., Macon, delegate to the American Medical Association.

ILLINOIS

New Cancer Clinic.—The 26th cancer diagnostic clinic established by the state department of public health has been opened at Fairfield Memorial Hospital in Fairfield. The meeting of the clinic will be held beginning at 1 p. m. on the third Monday of each month. Persons may be admitted to this clinic for cancer diagnostic service on referral by their physician or dentist.

Psychiatric Residency Training.—The Illinois Department of Public Welfare has outlined a program that will offer residents in psychiatry three years of training in approved mental hospitals affiliated with the department. These residents will be able to fulfill the requirements of the training programs suggested by the American Board of Psychiatry and Neurology. One and one-half years will be spent in state mental hospitals, and another one and one-half years will be devoted to the various specialties. The program will go into effect July 1. Residents in psychiatry will be assigned to individual hospitals. A representative of the chief medical officer will act as liaison officer between the department of public welfare and the various institutions. The educational residency training committee will serve as advisory counsel for the chief medical officer and the residents for complaints or suggestions.

Chicago

Award Ricketts Medal.—Herald R. Cox, Sc.D., director of viral and rickettsial research for the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y., received the Howard T. Ricketts gold medal May 7. The medal, established in 1949 in memory of Dr. Ricketts, a University of Chicago physician, is awarded for outstanding achievement in medicine. Dr. Cox was cited for having discovered Q fever in the United States.

Joseph A. Capps Prize.—The Institute of Medicine of Chicago offers this biennial prize of $600 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on a medical problem. Competition for 1951 is open to graduates of Chicago medical schools who completed their internship or one year of laboratory work in 1949 or thereafter. Manuscripts must be submitted to the Secretary of the Institute of Medicine of Chicago, 86 E. Randolph St., not later than Dec. 31. The manuscript of the prize paper is to become the property of the Institute of Medicine of Chicago. If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the board of governors.

IOWA

A Family of Doctors.—The fact that a doctor's sons often follow in their father's footsteps is illustrated by the Gilfillan family, in which the sixth generation is carrying on the family tradition. Dr. Homer J. Gilfillan of Bloomfield, who retired recently after 50 years in country practice in Iowa, had six sons who graduated from the University of Iowa School of Medicine. Until the recent death of the eldest, Dr. George William Gilfillan, all sons were in active practice. Ever since Dr. Alexander V. Gilfillan began practice in Philadelphia in 1796 this family has been active in the medical profession. According to *The Centaur*, Alpha Kappa Kappa's official journal, some member of this family has served in every war in which this country has engaged since the War of 1812. Five of the Gilfillan brothers saw active duty in World War II, and on return from service four entered practice in Bloomfield; the other two brothers are in practice in San Francisco and Sault Ste. Marie, Mich., respectively. A grandson is now taking premedical work at Iowa Wesleyan College.

MASSACHUSETTS

Society Election.—At the yearly meeting of the Massachusetts Society of Examining Physicians, held at the Harvard Club in Boston May 2 the following persons took office for the ensuing year: Dr. John J. Crowley, Lynn, president; Dr. John Leo Doherty, Boston, president-elect; Dr. Robert C. Gwin, Brookline, treasurer, and Dr. J. Robertson Knowles, Boston, secretary.

Cancer Research Institute and Joslin Auditorium.—Dedication exercises for the New England Deaconess Hospital Cancer Research Institute and the Elliott P. Joslin Auditorium were held June 5 in Boston. An address by Sumner T. Pike, vice chairman of the U. S. Atomic Energy Commission, Washington, D. C., was followed by an inspection of the new facilities. At the scientific session Dr. Sidney Farber, Boston, delivered the principal address. The scientific aims of the Cancer Research Institute were discussed by Dr. Shields Warren, Boston. Dr. Charles H. Best, Toronto, Canada, spoke in the evening at the dedication of the Joslin Auditorium. His subject was, "Medical Research and World Health." The institute combines under one roof cancer research, atomic research, cancer control and cancer diagnosis, outpatient department tumor clinics, and postgraduate medical instruction in cancer. The research activities will include biological chemistry, biophysics, biostatistics, clinical contacts, experimental pathology, hematology, radiobiology, and x-ray diffraction. The Institute will house also the cancer control unit of the Harvard School of Public Health, the Massachusetts State Tumor Diagnosis Service, the pathology laboratory of the Harvard Cancer Commission, and an auditorium for the use of the staffs of the New England Deaconess Hospital and Cancer Research Institute.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

MINNESOTA

Outbreak of Salmonellosis.—Dr. Dean S. Fleming of Minneapolis, a member of the Minnesota Department of Health, has reported to the U. S. Public Health Service an outbreak of Salmonella typhimurium infection, the suspected source of which was raw turkey eggs used in preparing the eggnog from which the organism was isolated. Ten of the 11 persons who drank the eggnog became ill with gastro-enteritis seven to 24 hours later. Salmonellosis typhimurium was isolated from nine of the 11 persons, including one who did not have clinical symptoms.

Personals.—Dr. S. Marx White, Minneapolis, received the annual distinguished service award of the Community Chest and Council of Hennepin County in January. Dr. White, who has practiced in Minneapolis for more than 50 years, has been president of the state board of health and the Community Chest and member of the county sanatorium commission.——Dr. John F. Pohl of Minneapolis left early in April on a three month fellowship in Europe under the World Health Organization to study treatment, care, management and employment of crippled children and adults in England, Germany, France and Austria.

NEW YORK

Postgraduate Lecture.—The Herkimer County Medical Society meeting at the Pinecrest Sanatorium, Salisbury Center, June 12 will hear Dr. Milton Plotz, Brooklyn, speak on "Hypertension and Coronary Heart Disease." The program has been arranged by the Medical Society of the State of New York in cooperation with the New York State Department of Health.

Course on Electron Microscope.—The summer laboratory course in techniques and applications of the electron microscope will be given again this summer by the laboratory of electron microscopy in the department of engineering physics at Cornell University July 9-21. Inquiries should be addressed to Prof. Benjamin M. Siegel, Department of Engineering Physics, Rockefeller Hall, Cornell University, Ithaca, N. Y.

Fellowships in Arthritis.—The Arthritis and Rheumatism Foundation is offering research fellowships in the basic sciences related to arthritis. Fellowships will be granted at both the predoctoral and the postdoctoral levels. The predoctoral fellowships will range between $1,500 and $3,000 per annum, and the postdoctoral from $3,000 to $6,000. Application forms may be obtained from the Medical Director, Arthritis and Rheumatism Foundation, 535 Fifth Ave., New York 17, before Nov. 15.

New York City

The Sixth Premature Infant Center.—Dedication ceremonies for the new Premature Infant Center at Bellevue Hospital were held May 22. The center, with a capacity of 32 infants and constructed at a cost of $48,000, is one of six such centers in operation or being constructed and equipped in the municipal hospitals, with one-third of the cost met with federal funds under the Hill-Burton Bill. The other centers are in Harlem, Queens General, Kings County, Fordham, and Lincoln hospitals. City-wide figures on the incidence of prematurity show that 8.5% of all live births are premature by weight definition. Fourteen per cent of these prematurely born infants die during their first year.

Clinic for Therapeutic Radiology.—Ground was broken May 18 for the new $160,000 underground Henry Harrington Janeway Clinic for Therapeutic Radiology at Roosevelt Hospital. The money has been raised from individual contributions, gifts from foundations, and a benefit sponsored by the hospital volunteers. The radium, valued at one million dollars, has been loaned to the hospital for five years by the Union Miniere du Haut Katanga of Belgium through the Radium Chemical Company, the American representative. The department was named for the late Dr. Henry Harrington Janeway, a pioneer in radium work who was later director of the early radium projects at Memorial Hospital. Dr. Douglas Quick will be director of the Janeway Clinic. The department will be located underground between the Russell Memorial Building and the Tower Memorial Building. The radium is being processed in Brussels and is expected to arrive simultaneously with the completion of the department in September.

VIRGINIA

University Appointments.—Dr. Lester A. Wilson Jr., instructor in obstetrics and gynecology, Duke University, Durham, N. C., was appointed assistant professor of obstetrics and gynecology at the University of Virginia Department of Medicine, Charlottesville, effective May 1. Edwin W. Pullen, instructor in biology at the university, has been appointed instructor in anatomy effective Sept. 1.

Death of Executive Secretary-Treasurer.—Mr. Henry S. Johnson, executive secretary-treasurer and public relations director of the Medical Society of Virginia, died May 23 after a short illness. Mr. Johnson was a graduate of the University of Richmond, held an M. A. degree from the University of Virginia, and did graduate work at the College of William and Mary and New York University. He formerly represented Goochland County in the state house of delegates and had many friends in the House of Delegates of the American Medical Association.

WEST VIRGINIA

Personal.—Dr. James L. Thompson of Weirton has been named chief surgeon and director of the medical department of the Weirton Steel Company at Weirton, succeeding Dr. Lewis A. Whitaker, who has retired after 23 years of service with the company but will continue as a consultant to the medical department. Dr. Thompson has been Dr. Whitaker's assistant for the past 16 years.

County Society Postgraduate Program.—The second annual postgraduate session of the Barbour-Randolph-Tucker Medical Society will be held at the Tygart Valley Country Club near Elkins June 21 with Dr. Charles L. Leonard of Elkins serving as moderator. The following scientific program will be presented, beginning at 2 o'clock:

Samuel P. Martin, Durham, N. C., Treatment of Common Respiratory Disorders.
Bill L. Martz, Indianapolis, Anion Exchange, Resins: A New Concept in the Treatment of Edema.
Brian Blades, Washington, D. C., Bronchiogenic Carcinoma.

Dr. Delivan A. MacGregor, Wheeling, will be toastmaster at the annual banquet in the evening, and the guest speaker will be Lt. Col. Colin F. Vorder Bruegge (MC) USA, Institute of Pathology, Washington, D. C. A general invitation has been extended to members of the West Virginia State Medical Association to attend the meeting.

WISCONSIN

Marquette Alumni Meeting.—The Marquette Medical Alumni Association will hold a luncheon meeting at the Hotel Dennis in Atlantic City, N. J., on Tuesday, June 12. Father Clarence J. Ryan, regent of the alumni association, and Dr. John S. Hirschboeck, dean of Marquette University School of Medicine, Milwaukee, will speak. Marquette medical alumni should make reservations with the Alumni Association office, 1533 W. Wisconsin Ave., Milwaukee.

Diabetes Control Program.—This program in Milwaukee, which was staffed by the personnel of the U. S. Public Health Service, closed in February after 22 months in which it gave free diabetes detection tests to study the effectiveness of various diabetes detection programs. The Public Health Service funds have been diverted into the field of civil defense. The testing began in the fall of 1949 in the first of three Milwaukee areas of 10,000 population each. Three plans of educational approach were used: door-to-door distribution of literature, supplemented by house-to-house visits by city health nurses, and the community approach to lay groups. Blood-sugar tests were used for most of the people in the three areas, rechecks of non-negative tests were made and follow-up was completed. Physicians reported to the program on the final diagnosis. In the blood-sugar testing program nearly 5,000 persons were examined. About

250 were referred to their private physicians, and 180 were previously undetected diabetics who were placed under treatment by the physician of their choice. On Oct. 16 the program changed from blood-sugar testing to urine testing and was conducted in industrial plants. Of 6,300 containers returned, 26 patients were diagnosed as previously undetected diabetics and were put under the care of their family physicians. Final accurate statistical evaluation of the data will not be available until tabulated by the U. S. Public Health Service.

GENERAL

American Diabetes Association.—The 11th annual meeting of the American Diabetes Association will be held at Chalfonte-Haddon Hall, Atlantic City, N. J., June 9-10 under the presidency of Dr. Lester J. Palmer, Seattle. In addition to the scientific program there will be a conference of presidents of affiliate associations Saturday morning, a luncheon conference, and a banquet Saturday evening at which the Banting Memorial Medal will be presented to Dr. Cyril N. H. Long, sterling professor of physiological chemistry, Yale University School of Medicine, New Haven, Conn. Dr. Long will present the Banting Memorial Lecture Saturday afternoon on "The Endocrine Control of the Blood Sugar." An address will be presented by Gerald L. Wendt, Ph.D., New York, on "The Interpretation of Scientific Progress." The annual business meeting will be held Sunday morning.

Cancer Society Plans More Clinics.—The American Cancer Society announced in March plans to increase by 150 per cent the number of cancer detection and treatment clinics. At least 900 more are needed to provide one center for every 100,000 population. There are now 609 such centers, according to Dr. Charles S. Cameron, medical director. The society will equip the clinics, provide supplies and operating facilities and help form a cancer group from the regular hospital staff in any locality. Only two states have enough cancer clinics to meet the society's population formula, Dr. Cameron said. They are Connecticut, with 23 centers for its over 2,000,000 residents, and New Hampshire, which has 11 facilities and a population of 533,000. Twelve of the nation's 609 cancer services are cancer hospitals, 470 are cancer clinics in hospitals, 120 are cancer diagnostic clinics and seven are departmental cancer clinics in other institutions.

Western Institute on Epilepsy.—The third Western Institute on Epilepsy will be held in Salt Lake City, June 15-17. The program is presented as a memorial to Dr. Jerry C. Price, formerly associated with the Neurological Institute in New York and vice president of the National Association to Control Epilepsy. Dr. Tracy Putnam, Beverly Hills, Calif., will speak on "The Evolution and Future of the Treatment of Epilepsy." Besides demonstrations and scientific papers, there will be a symposium on the therapeutic considerations under the chairmanship of Dr. Louis S. Goodman, University of Utah School of Medicine, Salt Lake City. Other participants will be Dr. Richard R. Carter, Portland, Ore., and Dr. Jean P. Davis, Salt Lake City. Registration fee for all physicians is $5 and for others $3, which includes the luncheon on Saturday. Applications should be sent to: Chairman, Western Institute on Epilepsy, Department of Psychiatry, Salt Lake General Hospital, 156 Westminster Ave., Salt Lake City.

American Therapeutic Society.—The 52d annual meeting of the American Therapeutic Society will be held at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 8-10 under the presidency of Dr. James A. Lyons, Washington, D. C. An address of welcome will be presented by Dr. Anthony G. Meredino, president of the Atlantic County Medical Society. Among the speakers on the scientific program are: Drs. George L. Waldbott, Detroit; Z. T. Bercovitz, New York; L. Clagett Beck, Honolulu, Hawaii; Anthony Bassler, New York; Ernest A. Spiegel and Henry T. Wycis, Philadelphia; Francis M. Pottenger, Monrovia, Calif.; W. Wayne Babcock, Philadelphia; Benjamin Manchester, Washington, D. C.; Howard Wakefield and Willis G. Diffenbaugh, Chicago; Alphonse McMahon, St. Louis; Louis Faugeres Bishop Jr., and Milton R. Beyers, New York; Frank W. Konzelmann, Washington, D. C.; Paul Cutler, Atlantic City, N. J.; David I. Macht, Baltimore; Herbert S. Kupperman and Stanley J. Goodman, New York; Hollis K. Russell, Scarsdale, N. Y., and Oscar B. Hunter Jr., Washington, D. C. The president's reception will be held Saturday evening, followed by the banquet at which the speaker of the evening will be Dr. Jonathan Forman, Columbus, Ohio, editor of the *Ohio State Medical Journal.*

Colonel Tuttle to Retire.—Col. Arnold D. Tuttle, who pioneered medical research as related to commercial air transportation, has announced his retirement from United Air Lines, effective June 1. He will be succeeded by Dr. George J. Kidera. Col. Tuttle served in France during World War I, supervised the reorganization of the Army medical department, and served as commandant of the Army School of Aviation Medicine at Randolph Field, Texas. He joined United in 1937 to undertake a long-range project of applying medical research and techniques to commercial air transportation. He holds the 1949 John Jeffries award of the Institute of Aeronautical Sciences for "outstanding contributions to the advancement of aeronautics through medical research." His military decorations include the Distinguished Medal, French Legion of Honor, and Belgian Order of Leopold. Dr. Kidera, with United since 1939, served four years as an Air Force flight surgeon, then returned to United in 1946 as head of the company's Chicago medical branch.

Foundation Prize.—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons will award its Foundation Prize of $200 at the annual meeting of the association, at which time the successful contestant must appear in person to present his contribution as a part of the regular scientific program. Eligible contestants shall include only (a) interns, residents or graduate students in obstetrics, gynecology or abdominal surgery, and (b) persons with an M.D. degree or a scientific degree approved by the Prize Award Committee, who are actively practicing or teaching obstetrics, gynecology or engaged in research in these fields. Manuscripts must be presented under a nom de plume, which shall in no way indicate the author's identity, to the secretary of the association together with a sealed envelope bearing the nom de plume and containing a card showing the name and address of the contestant. Manuscripts must be limited to 5,000 words and must be typewritten in double spacing on one side of the sheet. Ample margins should be provided.

World Birth Rates.—Birth rates throughout the world rose sharply shortly after the close of World War II and have continued at high levels during the postwar years, Metropolitan Life Insurance Company statisticians report. Most of the countries had higher birth rates during the war than in the years just before the war. In the United States, for example, the rates averaged 15 per cent higher in 1940-1944 than in 1937-1939, and in Austria, Sweden, Switzerland, and New Zealand the rise from the prewar to the war years was even more pronounced. These facts suggest that the postwar rise in births in many of the countries was due not so much to deferment of births during the war as to the improvement of economic conditions after the war. Although the world trend has been somewhat downward since 1947, when most countries reached their postwar birth rate peak, the declines generally have been slight. In the United States the 1949 rate was only 7 per cent lower than that for 1947, and the decreases have been even smaller in other countries, including Canada, the Union of South Africa, and Australia. Exceptions to this are England and Wales and the Netherlands, where the rates had declined markedly by 1949 from their postwar peaks. France, for many years prior to the war on the brink of a population decline, experienced an upsurge of births during the postwar years, which by 1947 had carried its birth rate to a point 43 per cent higher than the prewar level. Japan's 1947 birth rate was 22 per cent above the prewar figure, and the decline from 1947 through 1949 was only 3 per cent, although the first nine months of 1950 showed a sharp fall that may bring the 1950 rate close to the 1937-1939 level. Western Germany and Italy have departed from the general pattern. Western Germany's birth rate rose somewhat during the postwar years but remained well below the 1938 figure, and the Italian rate, after rising during 1945 and 1946, declined by 1949 to 15 per cent below that for the prewar period.

CANADA

Personal.—The Manufacturers Life Insurance Company, Toronto, has announced the appointment of Dr. David J. Breithaupt, Scarborough Junction, Ontario, as assistant medical officer.

Cleft Palate Rehabilitation.—A clinical and research project in caring for children and adults with cleft lip and palate was established during 1950 at the Royal Victoria Hospital in Montreal. *A grant of over $20,000 from the Department of Health* of the Province of Quebec, which will provide partial support, has been renewed for 1951. This program provides speech therapy in both French and English and offers training facilities for children and adults. A long term research investigation into the value of various types of therapy will be carried out. Experimental work on animals, already completed, has revealed data on the role of environmental factors in causation of cleft palate. The speech pathologist in charge of speech therapy is Mr. Robert Sparks, M.A., formerly of Stanford University, San Francisco.

FOREIGN

Medical Education Team for Japan.—The organization of the third medical education team for Japan has been undertaken by the Unitarian Service Committee with the approval of the Supreme Command Allied Powers. Four teams of three men each will spend a period of two weeks in three different medical schools between May 14 and July 1. The medical education team is composed of Drs. Paul B. Beeson, Atlanta; Lauren V. Ackerman, St. Louis; Daniel C. Darrow, New Haven, Conn.; Charles S. Davidson, Boston; Charles G. Johnston, Detroit; Philip Handler, Ph.D., Durham, N. C.; Drs. Salvatore P. Lucia and Robert R. Newell, San Francisco; Malcolm H. Soule and Maurice H. Seevers, Ann Arbor, Mich., and Perry P. Volpitto, Augusta, Ga. A second surgeon will be included.

British South African Meeting Cancelled.—The annual scientific meeting of the British Medical Association, which was to have been held in South Africa, has been cancelled due to circumstances outside the control of the Association. Arrangements have now been made jointly by the Royal Society of Medicine and the British Medical Association for a series of scientific meetings to be held throughout June at One Wimpole St., London, W. 1. This scientific meeting will consist of symposiums introduced by eminent authorities on subjects of special interest under the general heading of "Medicine in Britain in the Festival Year, 1951—Its Achievements and Its Future." These meetings are open to all medical practitioners. A cordial invitation has been extended to members of the American Medical Association.

First Children's Hospital in Bolivia.—An agreement providing for technical assistance from the World Health Organization in the construction, equipping, and organization of the first children's hospital in Bolivia has been signed by the minister of health of Bolivia and the director of WHO's regional office for the Americas. The $500,000, 240-bed hospital already under construction in La Paz is scheduled for completion in 1952. The United Nations International Children's Emergency Fund has earmarked $75,000 for equipment and supplies. The World Health Organization has set aside $40,000 for the training of *professional and technical personnel for the hospital's* staff. Fellowships will be awarded by WHO for the postgraduate and technical training of four pediatricians, three pediatric nurses, and one each of the following: radiologist, pathologist, anesthetist, director of nurses, operating room supervisor, *hospital administrator*, hospital accountant, laundry manager, maintenance engineer, and medical librarian. The fellowship recipients will be selected by the Bolivian Ministry of Health and will receive training in medical institutions in the United States and Latin American countries. The new children's hospital will be used as the foundation for a comprehensive program for child health services in Bolivia and will serve also as a training center for pediatricians, pediatric nurses, social workers, and other personnel engaged in child health and welfare.

MEETINGS

American Medical Association, Atlantic City, June 11 to 15. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American College of Chest Physicians, Atlantic City, June 7-10. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, June 10. Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Diabetes Association, Chalfonte-Haddon Hall, Atlantic City, June 9-10. Dr. John A. Reed, 11 W. 42d St., New York 18, Secretary.

American Electroencephalographic Society, Hotel Claridge, Atlantic City, June 16-17. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Hearing Society, Palmer House, Chicago, June 29. Mrs. Frances E. Lee, 817 Fourteenth St. N.W., Washington 5, D. C., Secretary.

American Medical Women's Association, Hotel Dennis, Atlantic City, June 9-11. Dr. Mildred C. J. Pfeiffer, *Woman's Medical College of* Pennsylvania, Philadelphia 29, Secretary.

American Neurological Association, Atlantic City, June 18-20. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Orthopedic Association, The Greenbrier, White Sulphur Springs, W. Va., June 20-23. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

American Proctologic Society, Atlantic City, June 7-10. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

American Society for the Study of Sterility, Ritz-Carlton Hotel, Atlantic City, June 9-10. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Therapeutic Society, Atlantic City, June 8-10. Dr. Oscar B. *Hunter, 915 Nineteenth St. N.W., Washington 6, D C., Secretary.*

Conference of Presidents and Other Officers of State Medical Associations, Hotel Traymore, Atlantic City, June 10. Mr. John E. Farrel, 106 Francis St., Providence 3, R. I., Secretary.

Great Falls Medical-Surgical Conference, Great Falls, Montana, June 25-26. Dr. William E. Sullens, Box 1066, Great Falls, Chairman.

Idaho State Medical Association, Sun Valley, June 17-20. Dr. Robert S. McKean, 305 Sun Building, Boise, Secretary.

Maine Medical Association, Poland Spring House, Poland Spring, June 17-19. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Medical Library Association, Denver, June 28-30. Miss Caroline Riechers, Rush Medical College Library, 1758 W. Harrison St., Chicago 12, Secretary.

Post Graduate Medical Assembly of South Texas, Shamrock Hotel, Houston, Texas, July 23-25. Mrs. W. H. Dahme, 229 Medical Arts Bldg., Houston, Executive Secretary.

Society for Vascular Surgery, Chalfonte-Haddon Hall, Atlantic City, June 10. Dr. George D. Lilly, 333 Ingraham Bldg., Miami 32, Fla., Secretary.

Society of Biological Psychiatry, Claridge Hotel, Atlantic City, June 17. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles 17, Secretary.

West Virginia State Medical Association, The Greenbrier, White Sulphur Springs, July 19-21. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Executive Secretary.

INTERNATIONAL

European Congress on Rheumatism, Barcelona, Spain, Sept. 24-27. Dr. Gunnar Edströn, Lund, Sweden, Secretary.

General Practitioners Study Club International, Rome, Italy, Sept. 12-15. Dr. John O'Connell, 10300 Lackland Road, St. Louis 14, Mo., U. S. A., President.

International Anesthesia Research Society, London, England, Sept. 3-7. Mr. R. W. Cope, University College Hospital, London W.C.1, England.

International Association of Allergists, Zurich, Switzerland, Sept. 23-29. Prof. A. S. Grumbach, Hygiene Institut der Universitaet Zurich, Gloriastr. 32, Zurich, Switzerland.

International Congress of Anesthesiology, Nursing School of the Salpiettre, 47 Boul de l'Hospital, Paris, France, Sept. 20-22. 12 rue de Seine, Paris 6^{e}, France, Secretariat.

International Congress of Clinical Pathology, London, England, July 16-20. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W.9, England, Secretary.

International Congress of Gynecology, Maison de la Chimie, Centre Marcellin, Paris, France, June 23-29. Dr. Maurice Fabre, 1, rue Jules-Lefebvre, Paris IX, General Secretary.

International Congress on Industrial Medicine, Instituto Superior Técnico, Lisbon, Portugal, Sept. 9-15. Dr. Luis Guerreiro, Instituto Nacional do Trabalho e Previdência, Praça do Comercio, Lisbon, Secretary General.

International Congress on Mental Health, Mexico City, Mexico, Dec. 11-19.

International Congress of Military Medicine and Pharmacy, Paris, France, June 17-23. Physician General Dutrey, 8, bis, rue de Recollets, Paris X, Secretary General.

International Exhibition of Medical Arts, Turin, Italy, May 30-June 12. Prof. S. Teneff, Palazzo della Exposizioni al Valentino, Turino, Italy.

International Gerontological Congress, Hotel Jefferson, St. Louis, Mo., U. S. A., Sept. 9-14. Dr. John E. Kirk, 5600 Arsenal Street, St. Louis 9, Mo., Chairman, Program Committee.

International Hospital Congress, Brussels, Belgium, July 15-21. Capt. J. E. Stone, 10 Old Jewry, London E.C., England, Secretary.

International Poliomyelitis Congress, Copenhagen, Denmark, Sept. 3-7. Prof. Dr. Niels Bohr, Statens Seruminstitut, 80 Amager Blvd., Copenhagen S., Denmark, President.

International Society of Surgery, Paris, France, Sept. 24-29. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, Secretary General.

International Society for the Welfare of Cripples, Fifth World Congress, Stockholm, Sweden, Sept. 9-14. Mr. Donald V. Wilson, 54 E. 64th St., New York 21, N. Y., U. S. A., Executive Director.

Pan Pacific Surgical Association Congress, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

Students' International Clinical Congress, Leyden, Utrecht, Groningen and Amsterdam, Holland, July 10-28. N. A. M. Bergstein, Oude Gracht 143 bis, Utrecht, Holland, Secretary General.

World Confederation for Physical Therapy, Copenhagen, Denmark, Sept. 7-8.

World Medical Association, Stockholm, Sweden, Sept. 15-21. Dr. Louis H. Bauer, 2 E. 103d St., New York 29, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: Montgomery, June 26-28. Sec., Dr. D. G. Gill, 519 Dexter *Ave., Montgomery.*

Arizona:* *Examination.* Phoenix, July 17-19. *Reciprocity.* Phoenix, July 21. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

Arkansas: * *Regular.* Little Rock, June 14-15. Sec., Dr. Joe Verser, Harrisburg. *Homeopathic.* Fort Smith, June 7-8. Sec., Dr. Carl S. Bungart, 105 N. 14th St., Fort Smith. *Eclectic.* Little Rock, June 7-8. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Written.* San Francisco, June 25-28 and Aug. 20-23. *Oral.* San Francisco, June 23 and Los Angeles, August 18. *Oral and Clinical Examination for Foreign Medical School Graduates.* San Francisco, June 24 and Los Angeles, August 19. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

Colorado:* *Examination.* Denver, June 18-20. *Reciprocity.* Denver, July 10. Sec., Dr. George H. Gillen, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, July 10-11. Sec. to the Board, Dr. Creighton Barker, 160 St. Ronan St., Hartford. *Homeopathic.* Derby, July 11-12. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, July 10-12. *Reciprocity.* Dover, July 19. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

District of Columbia:* *Reciprocity.* Washington, June 11. Sec., Dr. Daniel L. Seckinger, 4130 East Municipal Bldg., Washington.

Florida:* *Examination.* Jacksonville, June 24-26. Sec., Dr. Homer L. Pearson, 701 DuPont Bldg., Miami.

Georgia: Atlanta, June. Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. John Y. Battenfield, Agana.

Hawaii: *Examination.* Honolulu, July 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Idaho: Boise, July 9-11. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

Illinois: Chicago, June 26-28. Supt. of Regis., Mr. Charles F. Kervin, Capitol Bldg., Springfield.

Indiana: Indianapolis, June 20-22. Exec. Sec., Miss Ruth V. Kirk, 1138 K. of P. Bldg., Indianapolis 4.

Iowa: * *Written.* Iowa City, June 11-13. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 6-7. Sec., Dr. O. W. Davidson, 864 New Brotherhood Building, Kansas City.

Kentucky: Louisville, June 6-8. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville.

Louisiana: New Orleans, June 7-9. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans 12.

Maine: Augusta, July 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: Baltimore, June 19-22. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1. *Homeopathic.* Baltimore, June 19-20. *Examination.* Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

Massachusetts: *Examination.* Boston, July 10-13. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston 33.

Michigan:* *Examination.* Ann Arbor and Detroit, June 11-13. Sec., Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

Minnesota:* Minneapolis, June 19-21. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Jackson 113.

Missouri: St. Louis, June 7-9. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Nebraska: * June 1951. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln.

Nevada:* Carson City, August 6. Sec., Dr. G. H. Ross, 112 North Curry St., Carson City.

New Hampshire: Concord, Sept. 12-13. Sec., Dr. John Samuel Wheeler, Room 107 State House, Concord.

New Jersey: *Examination.* Trenton, June 19-22. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Santa Fe, Oct. 8-9. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

New York: Albany, Buffalo, New York and Syracuse, June 26-29. Sec., Dr. Jacob L. Lochner, Jr., 23 S. Pearl St., Albany 7.

North Carolina: *Endorsement.* Raleigh, June 18-21. Sec., Dr. Joseph J. Combs, 419 Professional Bldg., Raleigh.

North Dakota: Grand Forks, *July 4-7. Sec., Dr. C. J. Glaspel, Grafton.*

Ohio: *Examination.* Columbus, June 19-21. *Endorsement.* Columbus, April 3. Sec., Dr. H. M. Platter, 21 W. Broad Street, Columbus.

Oklahoma: * *Examination.* Oklahoma City, June 6-7. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Examination.* Portland, June 21-23. Special examination for physicians who have orders to report for military service about July 1. *Examination.* Portland, July 5-7. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland 4.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July 10-13. Acting Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: *Examination.* Santurce, Sept. 4. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* *Examination.* Providence, July 5-6. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 25-27. *Reciprocity.* Columbia, April 2 and May 15. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: Rapid City, July 17-18. Sec., Dr. Clarence E. Sherwood, 109 Center St., West, Madison.

Tennessee:* *Examinaiton.* Memphis and Nashville, June 13-14. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.

Texas:* *Examination.* Austin, June 14-16. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: Salt Lake City, July 11-13. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Vermont: *Examination.* Burlington, June 13-15. Sec., Dr. F. J. Lawliss, Richford.

Virginia: *Examination.* Richmond, June 14-16. Sec., Dr. K. D. Graves, *631 First St., S.W., Roanoke.*

Virgin Islands: St. Thomas, June 12. Sec., Dr. Earle M. Rice, St. Thomas.

Washington:* Seattle, July 16-18. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

West Virginia: Charleston, July 9-11. Sec., Dr. N. H. Dyer, Capitol Bldg., Charleston 5.

Wisconsin:* Milwaukee, July 10-12. Sec., Dr. C. A. Dawson, River Falls.

Wyoming: *Examination.* Cheyenne, June 4. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Juneau, August. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arizona: *Examination.* Tucson, June 19. Sec., Mr. Francis A. Roy, Room 427, University of Arizona, Tucson.

Colorado: *Examination.* Denver, June 6-7. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver. 3.

Connecticut: *Examination.* New Haven, June 9. Exec. Asst., Miss Mary G. Reynolds, State Board of Healing Arts, 110 Whitney Ave., New Haven.

District of Columbia: *Examination.* Washington, Oct. 22-23. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Florida: *Examination.* Gainesville, June 2. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Iowa: *Examination.* Des Moines, July 10. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Minnesota: *Examination.* Minneapolis, June 5-6. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Nevada: *Examination.* Reno, July 3. Sec., Mr. Frank Robinson, University of Nevada, Reno.

New Mexico: *Examination.* Santa Fe, June 17. *Sec., Miss Marguerite Cantrell,* Box 1522, Santa Fe.

Oklahoma: Oklahoma City, Sept. 14. *Sec., Dr. Frank C. Gallaher,* 813 Braniff Bldg., Portland 4.

Oregon: *Examination.* Portland, June 2, Sept. 8 and Dec. 1. Sec., Dr. Charles D. Byrne, State Board of Higher Education, University of Oregon, Eugene.

South Dakota: *Examination.* Vermillion, June 15-16. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Tennessee: *Examination. Memphis, July 5-6.* Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

Texas: *Examination.* Austin, October. Chief Clerk, Mr. B. H. Kirk, 306 Nalle Bldg., Austin.

Washington: *Examination.* Seattle, July 11-12. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

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* Basic Science Certificate required.

DEATHS

Jones, William Russell ⊕ Richmond, Va.; born in Orange County, Va., Jan. 18, 1870; University of Virginia Department of Medicine, Charlottesville, 1892; professor of chemistry, toxicology, and medical jurisprudence from 1897 to 1906, lecturer in clinical medicine and associate professor of medicine from 1906 to 1912 at his alma mater, where he had been a member of the board of directors and a trustee; at one time associated with the U. S. Public Health Service; member of the Richmond Academy of Medicine, Chesapeake and Ohio Association of Railway Surgeons, and the Association of Military Surgeons of the United States; chief surgeon and major in the medical corps of the Virginia National Guard in 1926; formerly consulting medical officer of the U. S. War Risk and Veterans Bureau; served as visiting physician to the Virginia Hospital, as visiting physician to the Retreat for the Sick Hospital, where he had been chief of medical staff, and visiting physician and member of the associate staff of the hospital division of the Medical College of Virginia; surgeon, Chesapeake and Ohio Railway; medical advisor and chief surgeon to the Richmond, Fredericksburg and Potomac Railroad; author of "Abstract of Lectures on Chemistry," 1899, and "A Text Book of Chemistry for Students and Practitioners of Medicine, Dentistry and Pharmacy," 1905; died in a local hospital March 20, aged 81, of acute gastric hemorrhage.

Chambers, William ⊕ Vice Admiral, U. S. Navy, retired, La Jolla, Calif.; born in Philadelphia Aug. 25, 1884; Jefferson Medical College of Philadelphia, 1907; commissioned a lieutenant (jg) in the medical corps of the U. S. Navy in 1908; served aboard the *USS Maryland, Lexington,* and *Galveston,* and with the Marine Corps, Atlantic Fleet Marine Expeditionary Forces, 13th Marine Regiment, and the Marine Guard, Peking, China; in 1926 was designated a flight surgeon; in 1933-1934 was a member of the American Scientific Mission to Haiti; medical officer in command of the Naval Hospital, Canacao, P. I., from 1935 to 1938, Naval Medical School, Washington, D. C., from 1938 to 1940, Naval Hospital, San Diego, from 1940 to 1942, and the National Naval Medical Center, Bethesda, Md., from 1944 to 1946; was district medical officer of the 14th Naval District then became inspector of the medical department activities of the Pacific area from 1942 to 1944; for his outstanding duties in this assignment received the Distinguished Service Medal; retired on Nov. 1, 1946; fellow of the American College of Surgeons; died in the U. S. Naval Hospital March 29, aged 66, of cerebral hemorrhage.

Sanderson, Edward Theodore, Alexandria, Minn.; born in Boone, Iowa, April 20, 1875; Bennett Medical College, Chicago, 1905; member of the American Medical Association; formerly professor of anatomy at his alma mater, where he had been secretary and registrar; appointed to the first state advisory commission on tuberculosis in 1917; in 1922 was appointed to the state board of medical examiners and remained on the board until 1932; past president of the Lyon-Lincoln Counties Medical Society; awarded citations and medals from the Presidents of the United States for the examination of selectees in World Wars I and II; served as mayor and councilman of Alexandria and for many years member and president of the school board; on the staff of the Marshall (Minn.) Hospital; died March 16, aged 75, of cerebral thrombosis.

Hirsh, Maurice, Patton, Calif.; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1913; formerly affiliated with Jewish Consumptive Relief Society Sanatorium, Denver; for many years chief resident physician and assistant medical director of Duarte National Medical Center in Duarte; affiliated with Patton State Hospital; served on the staff of the Los Angeles Sanatorium in Duarte, where he died Feb. 27, aged 62, of bronchogenic carcinoma following left pneumonectomy.

Abington, W. H. Beebe, Ark.; Memphis Hospital Medical College, 1896; state senator; also a druggist; died March 19, aged 80.

Althans, Carl ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1903; died April 1, aged 69, of myocardial infarction.

Banach, Leon, Jersey City, N. J.; Chicago College of Medicine and Surgery, 1915; died in the B. S. Pollak Hospital for Chest Diseases March 14, aged 65, of coronary thrombosis.

Benn, Ferdinand George ⊕ La Mesa, Calif.; Minneapolis College of Physicians and Surgeons, 1903; member of the Minnesota State Medical Association; an Associate Fellow of the American Medical Association; died March 12, aged 72.

Blackwell, Samuel R., Gary, Ind.; Meharry Medical College, Nashville, Tenn., 1913; died in the Methodist Hospital March 4, aged 69, of pneumonia and myocardial failure.

Burnett, James Robinet ⊕ Caldwell, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1912; on the staff of the Caldwell General Hospital; died Feb. 23, aged 70.

Chandler, John Franklin, Oregon, Mo.; Kansas City Medical College, 1895; member of the American Medical Association; died in St. Joseph Feb. 19, aged 84, of bronchopneumonia.

Clegg, Earl George, Sheridan, Wyo.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; served on the staff of the Sheridan County Memorial Hospital, where he died March 31, aged 70, of cerebral hemorrhage.

Coffey, J. O., Queen City, Mo.; Missouri Medical College, St. Louis, 1885; for many years member of the school board; died March 25, aged 87.

Conover, Earl, Evansville, Ind.; University of Louisville Medical Department, 1905; served on the staffs of St. Mary's Hospital and the Deaconess Hospital, where he died March 25, aged 72, of cardiovascular renal disease.

Dainty, George Wood ⊕ Monument Beach, Mass.; Tufts College Medical School, Boston, 1907; for many years chairman of the school committee in Bourne; on the consulting staff and a director of the Barnstable County Sanatorium in Bourne; on the consulting staffs of the Cape Cod Hospital in Hyannis and Tobey Hospital in Wareham; died March 24, aged 66, of chronic nephritis, uremia and rheumatoid arthritis.

Dougherty, Lewis Edwin, Canton, Ohio; Ohio State University College of Medicine, Columbus, 1924; member of the American Medical Association; died Feb. 20, aged 54, of acute myocardial infarction.

Dowling, Joseph Ivimey, Albany, N. Y.; born in Woodside, N. J., Dec. 22, 1872; New York Homeopathic Medical College, New York, 1895; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; specialist certified by the American Board of Ophthalmology; medical health inspector for the health department of New York City from 1896 to 1898; served on the staff of the Memorial Hospital; died March 22, aged 78, of arteriosclerotic heart disease.

Duhamel, Oliver Gilbert, Marlboro, Mass.; School of Medicine and Surgery of Montreal, Canada, 1894; for many years city physician; on the staff of the Marlboro Hospital; died March 28, aged 81, of cerebral hemorrhage.

Dulaney, Henry Kennedy, Aberdeen, Md.; Atlantic Medical College, Baltimore, 1910; member of the American Medical Association; died Feb. 10, aged 69.

Dyas, Thomas C., New York; University and Bellevue Hospital Medical College, New York, 1911; died in the Roosevelt Hospital March 11, aged 77, arteriosclerotic heart disease with aortic stenosis.

⊕ Indicates Fellow of the American Medical Association.

Englander, Simon ⊕ Cleveland; Western Reserve University Medical Department, Cleveland, 1901; served on the staffs of the Lakeside and St. Vincent Charity hospitals; died March 5, aged 71, of coronary thrombosis.

Enochs, Robert Jones, Hayden, Colo.; Medical Department of Tulane University of Louisiana, New Orleans, 1909; member of the American Medical Association; for many years associated with the Indian Service; resident physician at the Montana State Tuberculosis Sanitarium in Deer Lodge; died in the French Hospital, San Francisco, March 15, aged 68, of cerebrovascular accident.

Face, Edward Gill Jr. ⊕ Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1941; interned at the University of Virginia Hospital in Charlottesville; served during World War II; died March 6, aged 34.

Fairbanks, Clark Vernon, Dansville, N. Y.; University of Buffalo School of Medicine, 1896; served during World War I; died March 23, aged 78, of cerebral hemorrhage.

Farmer, Robert Allen, Grapeland, Texas; University of Texas School of Medicine, Galveston, 1910; died in Crockett recently, aged 68, of injuries received in an automobile accident.

Fellows, Frederick Brown, Wheaton, Ill.; Chicago College of Medicine and Surgery, 1914; member of the American Medical Association; medical examiner in World War I; died in the Elmhurst Memorial Hospital March 4, aged 85, of ulcer of the duodenum and hiatus hernia.

Flamm, Louis Francis, Muskogee, Okla.; Maryland Medical College, Baltimore, 1902; also a dentist; died in Temple, Texas, Feb. 22, aged 86, of carcinoma of the intestine.

Friis-Holm, Gudrun, Long Beach, Calif.; New York Medical College and Hospital for Women, Homeopathic, 1904; died in the Los Angeles County General Hospital Jan. 15, aged 83, of hemorrhage and carcinoma of the bladder.

Fudema, John Joseph, Chicago; Bennett Medical College, Chicago, 1914; died March 22, aged 63, of coronary thrombosis and hypertension.

Fuller, Frederick Henry, Walpole, Mass.; Harvard Medical School, Boston, 1894; member of the American Medical Association; served as school physician and health officer; died March 9, aged 80, of arteriosclerosis and pneumonia.

Garvin, Luke Denis ⊕ Bradford, Pa.; Northwestern University Medical School, Chicago, 1934; served during World War II; affiliated with Bradford Hospital; found in the Allegheny River in Salamanca, N. Y., March 18, aged 48.

Gilfillan, George William ⊕ Bloomfield, Iowa; State University of Iowa College of Medicine, Iowa City, 1924; served during World War II; on the staff of St. Joseph Hospital in Ottumwa, where he died March 28, aged 51, of periarteritis nodosa.

Goldwater, Abraham Lincoln ⊕ New York; Bellevue Hospital Medical College, New York, 1897; died March 23, aged 79, of cerebral thrombosis.

Grace, John Franklin, Excelsior Springs, Mo.; Medico-Chururgical College of Kansas City, 1903; member of the American Medical Association; served during World War I; member of the city board of health; served on the city council and school board; on the staff of the Excelsior Springs Sanitarium and Hospital; died in the Veterans Administration Hospital, Wadsworth, March 3, aged 72, of carcinoma of the stomach.

Greenleaf, Clarence Albert, Olean, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1896; member of the American Medical Association; past president of the New York State Association of School Physicians; medical director of the school system and director of the county school hygiene service; served during World War I; died in the Memorial Hospital, New York, March 4, aged 78.

Gronoway, Terrence Ponderley ⊕ Macon, Mo.; Washington University School of Medicine, St. Louis, 1910; died March 7, aged 63, of coronary thrombosis.

Hanson, Kenneth Boccarde ⊕ Cincinnati; University and Bellevue Hospital Medical College, New York, 1930; member of the American Association of Industrial Physicians and Surgeons; fellow of the American College of Surgeons; served during World War II; affiliated with St. Francis, Good Samaritan, Our Lady of Mercy, and St. Mary's hospitals; died in Rome, Italy, March 22, aged 45, of cerebral hemorrhage.

Hartin, David, Spokane, Wash.; McGill University Faculty of Medicine, Montreal, Canada, 1914; member of the American Medical Association and the Pacific Coast Oto-Ophthalmological Society; served overseas with the Canadian Army during World War I; died March 9, aged 59, of coronary occlusion.

Hastings, Seman Wood ⊕ Monterey, Calif.; University of Southern California School of Medicine, Los Angeles, 1908; died recently, aged 73, of heart disease.

Haury, Richard Samuel, Newton, Kan.; Northwestern University Medical School, Chicago, 1902; fellow of the American College of Surgeons; served as a member of the state board of health; for many years a director of the Midland National Bank; affiliated with Bethel Deaconess Hospital, where he died March 16, aged 78, of hypertension, arteriosclerosis, and cerebral hemorrhage.

Hay, Gilbert W., Parsons, Kan.; Chicago College of Medicine and Surgery, 1913; member of the American Medical Association; served on the staff of the Mercy Hospital, where he died March 3, aged 74, of cerebral hemorrhage.

Helbing, Arlington, San Angelo, Texas; American Medical College, St. Louis, 1905; member of the American Medical Association; local surgeon for the Santa Fe Railroad; affiliated with Shannon, West Texas Memorial, and St. John's hospitals; died Jan. 24, aged 68, of acute coronary occlusion.

Hibbard, Samuel M., Sabetha, Kan.; Ensworth Medical College, St. Joseph, Mo., 1907; member of the American Medical Association; veteran of World War I; later a lieutenant colonel in the medical reserve corps (not on active duty); served as mayor; on the staff of St. Anthony Murdock Memorial Hospital; died in Veterans Administration Hospital, Topeka, March 7, aged 65, of coronary thrombosis.

Holding, Solomon Pace, Wake Forest, N. C.; Bellevue Hospital Medical College, New York, 1897; at one time mayor of Wake Forest; died March 3, aged 79, of coronary thrombosis.

Holloman, Thomas Bascom, Itta Bena, Miss.; Memphis Hospital Medical College, 1898; member of the American Medical Association; died March 28, aged 76.

Houston, Albert Joshua, Beverly Hills, Calif.; Cooper Medical College, San Francisco, 1898; member of the American Medical Association; clinical professor of otology, rhinology, and laryngology emeritus at the University of California Medical School, San Francisco; died March 28, aged 77.

Howard, John Edgar, Haddonfield, N. J.; Jefferson Medical College of Philadelphia, 1901; member of the American Medical Association; died in the Cooper Hospital, Camden, March 8, aged 75, of coronary thrombosis.

Howe, Warren D., Dorset, Vt.; Chicago Homeopathic Medical College, 1895; died in Daytona Beach, Fla., in March, aged 83, of cerebral thrombosis.

Hoyt, Charles Wentworth ⊕ Hingham, Mass.; Harvard Medical School, Boston, 1905; died Feb. 7, aged 71.

Hummel, Leonard Malcolm ⊕ Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1934; died Feb. 7, aged 41.

Jacobs, Jay, San Francisco; Cooper Medical College, San Francisco, 1911; member of the American Medical Association; served during World War I; died in the Veterans Administration Hospital March 18, aged 62, of hypertensive encephalopathy.

Jayet, Albert Charles A., Santa Cruz, Calif.; University of Vermont College of Medicine, Burlington, 1889; past president of the Santa Clara County Medical Society; formerly practiced in San Jose, where he was city councilman; died March 11, aged 87.

Johnson, Burke Lamartine, Kenton, Ohio; Cleveland Medical College, Homeopathic, 1896; honorary president and for many years direector and president of the Kenton National Bank; died March 24, aged 77.

Knox, Charles Albert ⊕ Ridgefield Park, N. J.; Baltimore Medical College, 1904; died in the Hackensack (N. J.) Hospital March 9, aged 72, of coronary thrombosis.

Knudson, Theodore James, Springfield, Ill.; Northwestern University Medical School, Chicago, 1895; died April 14, aged 82.

Lartigau, August Jerome ⊕ Ojai, Calif.; University of California Medical School, San Francisco, 1896; fellow of the American College of Surgeons; an Associate Fellow of the American Medical Association; formerly on the staff of Children's Hospital in San Francisco; died in St. Francis Hospital, Santa Barbara, March 14, aged 76, of pneumonitis and arteriosclerotic heart disease.

Matteson, Herman Howard, Los Angeles (licensed in Wisconsin in 1900); surgeon of exploring parties in Central America, ship's surgeon, and surgeon at a federal penitentiary; died March 18, aged 76, of ruptured esophageal varix.

Mendenhall, William E. ⊕ Indianapolis; State College of Physicians and Surgeons, Indianapolis, 1907; died Feb. 20, aged 80, of coronary embolism.

Morrill, Leonard Brown ⊕ Center Harbor, N. H.; University of Vermont College of Medicine, Burlington, 1888; died March 17, aged 85, of chronic myocarditis.

Page, Willifred, Ellis, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1907; served during World War I; died in Veterans Administration Center, Wichita, recently, aged 73, of arteriosclerotic heart disease.

Palisch, Gotthilf A., Agency, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1896; died in Cape Girardeau March 15, aged 75, of acute coronary thrombosis and chronic myocarditis.

Plimpton, Robert Pearson, Denison, Iowa; Chicago Homeopathic Medical College, 1900; died in Riverside Hospital, Jacksonville, Fla., March 10, aged 79, of congestive heart failure and rheumatic fever.

Puckett, Charles Logan, St. Louis; St. Louis College of Physicians and Surgeons, 1904; member of the American Medical Association; died March 30, aged 72, of heart disease.

Rath, Otto A., Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; for many years associated with the Memorial Hospital, where he died March 9, aged 86.

Riker, John Lawrence, Rumson, N. J.; Columbia University College of Physicians and Surgeons, New York, 1930; served during World War II; died in Fair Oaks Sanatorium in Summit, Feb. 26, aged 46, of coronary thrombosis.

Rosier, John Bruner, Clarksburg, W. Va.; Jefferson Medical College of Philadelphia, 1900; died March 29, aged 78, of chronic endocarditis.

St. Clair, Frank Peter, Salt Lake City; John A. Creighton Medical College, Omaha, 1895; veteran of the Spanish-American War; died March 23, aged 78, of coronary occlusion.

Sargent, Susan Barbara Tallmon, Berkeley, Calif.; Northwestern University Woman's Medical School, Chicago, 1902; died Feb. 21, aged 78.

Scherer, Carl Ahrendt ⊕ Marysville, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1907; health officer of the Sutter-Yuba Bi County Health Unit; formerly health officer of St. Louis County, Minn., and director of rural health unit No. 4 of the Minnesota State Board of Health; died Feb. 12, aged 69, of common duct obstruction.

Scruggs, Elroy, Paris, Tenn.; Vanderbilt University School of Medicine, Nashville, 1913; member of the American Medical Association; chairman of the board of directors of the Federal Savings and Loan Association; died March 17, aged 71, of coronary occlusion.

Sisk, Clarence Frank ⊕ Zanesville, Ohio; Ohio State University College of Medicine, Columbus, 1926; past vice president and president of the Muskingum County Academy of Medicine; president of the county board of health; died Feb. 22, aged 50.

Smith, Edward Needham ⊕ Oklahoma City; born in Creston, Wash., Oct. 18, 1902; University of Pennsylvania School of Medicine, Philadelphia, 1927; clinical professor of obstetrics at the University of Oklahoma School of Medicine; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; obstetric consultant, Oklahoma State Department of Health; affiliated with Wesley, Mercy and University hospitals; died Feb. 26, aged 48, of coronary disease.

Smith, Wallace P., Waupun, Wis.; Northwestern University Medical School, Chicago, 1893; died in Beaver Dam recently, aged 82, of diabetes mellitus and arteriosclerosis.

Spencer, Clay, St. Joseph, Mo.; St. Louis University School of Medicine, 1903; died in the State Hospital No. 2 Feb. 19, aged 71, of cerebral hemorrhage.

Syfert, Alva Clyde, Arkansas City, Kan.; University of Kansas School of Medicine, Kansas City, 1915; died Feb. 15, aged 64, of chronic lymphatic leukemia.

Tetrick, Paul Wyckoff, Mason, Ohio; Medical College of Ohio, Cincinnati, 1904; member of the American Medical Association; on the courtesy staff of the Fort Hamilton Hospital and Mercy Hospital in Hamilton, where he died March 11, aged 70, of cholelithiasis and myocarditis.

Tindall, Herbert Frederick, Pasadena, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1924; certified by the National Board of Medical Examiners; died March 27, aged 52, of bronchopneumonia and generalized lymphosarcoma.

Tyson, Robert Stafford, Frederick, Md.; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the American Medical Association; on the staff of the Frederick Memorial Hospital; died in the University Hospital, Baltimore, March 23, aged 73, of pneumonia.

Wade, Charles Ernest, Santa Maria, Calif.; University of Oregon Medical School, Portland, 1897; died in Santa Barbara March 5, aged 81, of heart disease.

Walsh, Ford Cooper, Kansas City, Mo.; State University of Iowa College of Medicine, Iowa City, 1894; served during World War I; died in the Veterans Administration Center, Leavenworth, Kan., March 29, aged 78, of carcinoma of the prostate.

Wendt, Charles Isaac, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1895; served during World War I; on the staff of the Shadyside Hospital; died March 5, aged 79, of arteriosclerotic heart disease.

Wiencke, Edward John ⊕ Schenectady, N. Y.; Albany (N. Y.) Medical College, 1896; member of the American Trudeau Society; past president of the Schenectady County Medical Society; formerly tuberculosis clinician in the health department; served during World War I; past president and member of the board of Glenridge Sanatorium; honorary staff member of the Ellis and St. Clare's hospitals; died March 4, aged 76, of lobar pneumonia.

Wood, Howard J., Rockville Centre, N. Y.; Albany Medical College, 1885; died March 31, aged 89, of arteriosclerosis and uremia.

Yarbrough, Henry L., Tunica, Miss.; Memphis (Tenn.) Hospital Medical College, 1894; died Jan. 7, aged 86.

Young, Edmond Brooks, Vardaman, Miss.; University of Nashville (Tenn.) Medical Department, 1906; member of the American Medical Association; died in the Houston (Miss.) Hospital March 13, aged 68, of heart disease.

Zugg, Clarence Logan, Arkansas City, Kan.; College of Physicians and Surgeons, Medical Department of the Kansas City University, 1902; University of Kansas School of Medicine, Kansas City, 1912; member of the American Medical Association; on the staffs of St. Margaret's and Bethany hospitals in Kansas City; died in the Memorial Hospital, Arkansas City, March 9, aged 76, of myocardial infarction.

GOVERNMENT SERVICES

SELECTIVE SERVICE SYSTEM

OPERATIONS BULLETIN NO. 30

ISSUED: APRIL 9, 1951

AS AMENDED: MAY 16, 1951

SUBJECT: **Special Registrants Completing Internships or Residencies in June 1951**

1. A doctor of medicine or dentistry can perform his service in the armed forces with the least inconvenience to himself and with the least dislocation of medical programs in communities and hospitals immediately following the end of his period of internship or residency. Most internships and residencies are terminated on or about the 30th of June of each year.

2. It is the policy of the Department of Defense not to call to active duty an officer of the Medical Corps Reserve, except in the case of a bona fide volunteer, unless the Medical Advisory Committee concerned certifies that he is currently available for military service. Therefore, the Office of the Surgeon General of the Army has informed this Headquarters that the Army is declining to offer commissions to special registrants unless the registrant has been classified in Class I-A or Class I-A-O and the State Director of Selective Service verifies the fact that the registrant's file contains information submitted by the Medical Advisory Committee concerned indicating that the registrant is considered to be currently available for military service.

3. After a special registrant applies for a commission some time is required to complete his processing. Normally, orders placing reserve officers on active duty must be obtained at least thirty (30) days prior to the date of entry upon active duty. In order that a special registrant who desires to enter military service immediately after completion of his internship or residency training may be in a position to do so without loss of time while awaiting the completion of his processing for a commission and receipt of orders to active duty, local boards are requested to take the following actions:

(a) Those special registrant physicians in the first priority now serving internships or residencies in hospitals who are in Class I-A or Class I-A-O should be advised by the local boards to apply for a commission at the earliest possible date unless they have already done so by answering Item 30 of DD Form No. 390 in the affirmative.

(b) Each special registrant physician in the first priority who is now deferred to complete his internship or residency and whose file contains information submitted by the Medical Advisory Committee concerned recommending that the registrant be considered available for military service on or about June 30, 1951, and who the local board expects to reclassify in Class I-A or Class I-A-O should be promptly so reclassified. If the registrant has not been physically examined and found acceptable within the previous 180 days, the local board shall forward him to the armed forces joint examining and induction station for physical examination and determination of acceptability. As soon as the registrant has been reclassified, the local board should advise the Commanding General of the appropriate Continental Army through the State Director of Selective Service that the registrant is in Class I-A or Class I-A-O and that his file contains the recommendation of the Medical Advisory Committee that he be considered available for service.

(c) Those special registrant physicians in the first priority who have answered Item 30 of DD Form No. 390 in the negative and who have been examined and found acceptable and those registrants who were offered commissions and declined them should each now be offered an opportunity to apply for a commission by signing the following application addressed to the Commanding General of the appropriate Continental Army:

> "I do hereby now apply for a commission in the Medical Corps Reserve of one of the Armed Forces of the United States."

This statement should be signed by the registrant in the presence of a witness and should be delivered to his local board. If the registrant has answered Item 30 of DD Form No. 390 in the negative, the local board should attach to the application for commission Standard Form 89, the original and one copy of Standard Form 88, and the original and one copy of DD Form No. 390 pertaining to the subject registrant. All of these documents should be forwarded to the Commanding General of the appropriate Continental Army through the State Director of Selective Service. If the registrant was offered a commission and declined it, the application for commission without other papers, should be forwarded to the appropriate Commanding General through the State Director.

(d) Each special registrant physician in the first priority classified as available for service who applies for a reserve commission and who either has not been physically examined or was so examined more than 180 days previous to such application should, without delay, be forwarded for physical examination in accordance with the provisions of Part 1650 of the Selective Service Regulations.

ARMY

The Order of the Boar.—The 24th annual dinner of the parent chapter of the Order of the Boar will be held June 9 at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas. The Order of the Boar originated in 1928 at the Medical Field Service School when it was at Carlisle Barracks, Pa., and now has about 2,500 members. Active branches of the organization are located also at Walter Reed Army Hospital, Washington, D. C., Camp McCoy, Wis., and Chicago, Ill. Membership in the Order is limited to officers of the armed services, both regular and reserve, who are interested in preventive medicine.

Outbreak of Gastro-Enteritis.—The Division of Preventive Medicine, Office of the Surgeon General, reports that in an outbreak of acute gastro-enteritis at Fort Meade, Md., on May 17, a total of 389 men were sick enough to report to the dispensary, and 10 are known to have become ill on a bus after leaving the post. Of these men, 102 were hospitalized. Epidemiological evidence indicates that the vehicle of infection was corned beef hash. The incubation period varied from one to six hours. A Staphylococcus was isolated from vomitus, but this organism has not yet been incriminated as a toxin producer. None of the hash was available for laboratory examination.

Awards and Commendations.—The Silver Star was recently awarded to Capt. Robert T. Jensen, Minneapolis. The citation reads in part as follows:

"Capt. Robert T. Jensen, Medical Corps, Seventh Infantry, Third Infantry Division, United States Army. During the night of Nov. 28-29, 1950, near Sackangni, Korea, a battalion of the Seventh Infantry was under strong attack from an estimated two enemy regiments. Captain Jensen, battalion surgeon, heedless of his own safety, continued medical attention to the wounded although enemy artillery, mortar, and small arms fire necessitated placing his aid station and most of its personnel underground. In the morning he called for helicopter evacuation of a wounded man. The enemy directed concentration of fire on the helicopter, but Captain Jensen unhesitatingly accompanied the patient across open ground and supervised loading the wounded man into the helicopter. Captain Jensen's gallantry and devotion to duty reflect great credit on himself and the military service."

Captain Jensen graduated from the University of Minnesota School of Medicine in 1948.

FOREIGN LETTERS

ITALY

Gastroduodenal Ulcer and Work.—Professors Torraca, Palmieri and Rodino reported on "Gastroduodenal Ulcer and Work." Professor Torraca pointed out that duodenal ulcer occurs more frequently than gastric ulcer and there is a higher incidence of the disease among men than among women. In addition to the patient's occupation, mental and physical fatigue, irregular meals, and nutritional deficiency must be taken into consideration. Surgical treatment may consist in pyloroduodenoantral resection, in some palliative operations when resection cannot be performed, or in resection of the gastric fundus according to Connell, devascularization of the stomach according to Hey, and bilateral vagotomy. Torraca obtained excellent results with gastric resection in 506 cases of gastric and duodenal ulcers and in 42 cases of anastomotic ulcer.

Professor Rodino discussed the late results of operations for gastroduodenal ulcer. In a follow-up of patients in whom gastrojejunostomy was performed at the surgical clinic of the University of Naples, he observed 43% complete recoveries, while in 57% of the cases various disturbances were still present. A control examination made more recently showed that cases of complete recovery have increased to 66%. The late results obtained with gastric resection are generally excellent, with completely favorable outcome in 75% of the cases and good results in 22%. There has been complete return to normal of the working capacity in 88% of the cases and partial return in 12% of the patients who underwent gastrojejunostomy, while in the cases in which resection was performed, there was complete recovery in 91.75% and partial recovery in 8.25%. There was complete recovery in 58% of the patients doing heavy manual work, while complete recovery occurred in 78% of patients performing lighter work.

Professor Palmieri discussed the relation between gastroduodenal ulcer and work. When gastroduodenal ulcer is considered as an accident occurring during work, it is necessary to keep in mind the topographic and chronologic criteria, the qualitative and quantitative efficiency of the moment in which it is presumed that the accident occurred, and the clinical history of the patient. The diagnosis should be definite, differentiating ulcer caused by superficial laceration of the mucosa from hemorrhagic gastritis. The evaluation of the injury caused by the accident varies according to the general condition, the type of work, the operability, and the complications. Whether gastroduodenal ulcer may be considered as a professional disease, *caused by lead or mercury poisoning, is a subject of controversy.*

In some cases, the ulcer is considered as an occupational disease, especially when it is due to prolonged standing, to excitement or to inadequate diet. Statistical data are controversial, however. With respect to the criteria of injury entitling the victim to disability pension, it is necessary that existing symptoms, the general condition, the kind of work, and the operability be evaluated.

Deficient Diet.—Nutritional deficiency was discussed by Professors Sotgiu and Panzini. Professor Sotgiu stressed the physiological concepts for appraisal of minimal and excellent nutrition; he divided the deficiencies according to etiogenetic factors, such as poverty and gastrointestinal disturbances, according to etiology in its true sense, i. e., total or partial deficiency of proteins, fats or vitamins, and according to the clinical aspects.

Deficiencies in workers may or may not be related to their work. A generic syndrome of malnutrition or special syndromes that comprise essentially the deficiencies of vitamins and minerals may exist. The generic syndrome prevails in workers.

Professor Panzini discussed the importance of nutritional deficiency, stressing especially the stage in which the undernourished subject, although not having acquired yet a definite disease, is no longer in good health. Besides emaciation and muscular changes, a nervous factor may exist, with increased chronaxia and mental changes. Edema and osteopathy are frequent; the skin and the endocrine glands manifest changes; a hypoglycemic syndrome is frequent. Company-paid lunches may aid in the prevention of nutritional deficiency through qualitative and quantitative caloric intake.

Pathology of the Choledochus and of the Ampulla of Vater.—At the medical academy Filippo Pacini of Pistoja, Professor Salotti of the University of Siena presented a report on a biliary syndrome due to pathologic changes in the choledochus and the ampulla of Vater, approaching this subject from the roentgenologic point of view. Recent preoperative and postoperative cholangiographic observations have revealed pathologic pictures which explain certain biliary syndromes and prompt the consideration of the importance of the area of the ampulla of Vater as a clinical anatomic complex.

Anatomically the region comprises the duodenal papilla, the transversal and longitudinal folds and the ampulla of Vater, the antrums of the bile duct and of the pancreatic duct. It also comprises a small opening through which the common bile duct reaches the papilla running obliquely and with a reduced caliber within the duodenal wall, where muscular bands form the sphincter of the choledochus, while another group of muscular bands surrounds the choledochus and the pancreatic duct, constituting what is properly called the sphincter of Oddi. The sphincter of Balli has a function antagonistic to that of the sphincter of Oddi, namely, that of opening the papillary orifice. Sometimes anatomic and anatomicoroentgenologic changes of the area take place, which concern the varied structures of the papilla and the various ways the bile ducts empty.

Recently Rocchi, Professor Salotti's pupil, demonstrated on the duodenum of cadavers the difficulty of obtaining the picture of the ampulla of Vater and the duodenal papilla as may be observed in living persons. This has led to the conclusion that, in the determination of certain pictures, the functional component occasionally assumes even greater importance than the anatomic one. Choledochographies with rapid serialograms show the various functional phases of the antrum of the choledochus, the spincter of Oddi, and of the duodenum in full synergy.

Work and Diabetes.—This subject was presented by Professors Vesce, Di Prisco and Pisani. Professor Vesce discussed the *etiopathogenesis* of diabetes in relation to work, pointing out that, in the development of diabetes, the factor of work should be considered not only as an exclusive expression of muscular and cerebral activity but also as a summation of physiological, mental and hygienic factors linked with the worker's task. The environment and the working materials are also of importance. Professor Vesce believes that work increases the blood sugar level in severe diabetes, but not all authors share this opinion. Carbohydrate diet is of great importance. Insulin in general increases the hypoglycemia already induced by work in patients with mild diabetes.

Professor Di Prisco discussed employment of diabetic patients. The diabetic patient may become incapacitated by clinical complications, which are more frequent in certain professions, i. e., ocular complications in patients engaged in visual work; vascular complications in businessmen, shoemakers, and farmers; cutaneous sequelae in waiters, brick layers, and farmers, and nervous complications in railroad employees and goldsmiths. It is necessary that workers be examined for diabetes in order that adequate treatment may be instituted early.

Professor Pisani spoke of the relations between diabetes and trauma, pointing out that, while traumatic diabetes is rare, hyperglycemia and glycosuria may be observed after trauma of whatever kind and site. The speaker affirmed that, in order to define the occasional relation between diabetes and trauma, one must demonstrate that the diabetic syndrome did not exist before the

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The items in these letters are contributed by regular correspondents in the various foreign countries.

trauma occurred; one must be aware of the lesions derived from trauma which may have involved the glycoregulatory system, and must ascertain whether it is real diabetes or extrainsular simple glycosuria and hyperglycemia.

Congress on Occupational Medicine.—The 16th national Congress on Occupational Medicine was held in Naples under the chairmanship of Professor Castellino. Before the congress started, Professor Grasso-Biondi lectured on "Distant Effects in Occupational Pathology," dealing especially with effects of trauma. He discussed the cases in which the discontinuity between the primary and the secondary focus of the lesions is only an apparent one, and how the connection occurs through the vessels, by means of either the blood elements or the central nervous system.

SWITZERLAND

Swiss Antituberculosis Association.—Progress in the treatment of pulmonary tuberculosis has been so important, in recent years, that the Swiss Antituberculosis Association chose as the main subject of its 1951 meeting (31st scientific meeting, Berne, April 13-14), a program aimed to make clear what has improved the treatment of this disease. One of the most interesting subjects was the treatment of the tuberculous cavity of the lung by the method of Dr. G. Maurer (Davos). In his lecture, Dr. Maurer projected a film to show the delicate details of the nonsurgical speleotomy and better to acquaint the group with a method that aroused great enthusiasm as well as criticism. An animated discussion followed this lecture. It seems that the nonsurgical speleotomy is an interesting way of curing the tuberculous cavity, but it has very limitated indications. The difficult technique of this method and the minutiae of a treatment which must last for several months are obstacles to the general use of nonsurgical speleotomy. It seems, also, that in most cases a thoracoplasty must eventually be performed to maintain good results. G. Maurer himself, as well as Prof. J. Hein (who represented the German Society of Tuberculosis), Dr. Good, Dr. de Ridder (Bruxelles), and Prof. W. Catel (Mammolshöhe) believe, however, that the method can be used on a wider scale and often without complementary thoracoplasty. On the other hand, Drs. Arnold (Leysin), Rubin (Davos), Tanner (Arosa), Gruninger (Lucerne) and Mordasini (Berne) think that nonsurgical speleotomy can be used only in exceptional cases and that its results are rather uncertain. Mordasini prefers even the endocavitary drying up according to Monaldi, which permits easier closing of the bronchus. This is also the opinion of Prof. Omodei Zorini, head of the Forlanini Institute of Rome. The main objection to Dr. Maurer's method is that the closing of the bronchus is rarely attained, despite all the techniques used, and the healing of a cavity of the lung is secured only when the bronchus is really closed.

The meeting of Saturday, April 14, was devoted to different communications. Drs. Wissler and Widmer (Davos) talked on the prognosis of pulmonary tuberculosis with cavities in children at puberty. The mortality rate, in open pulmonary tuberculosis, at this age, is no higher than in adults, contrary to general opinion. In the realm of therapeutics, Drs. Staubli and Regli (Montana) stated that paraaminosalicylic acid, given intravenously, drop by drop, can, in high dosage, have an action like that of streptomycin. This meeting was honored by the presence of Professor di Paola, from Rome, who had the same day demonstrated his technique of thoracoplasty in the Inselspital of Berne.

Prof. Henry Sigerist.—Henry E. Sigerist, celebrated his 60th birthday on April 7, 1951. As professor and head of the Institute of the History of Medicine of the famous Johns Hopkins University, he taught this branch to several generations of students. Prof. Sigerist is the author of numerous publications; In Zurich, he founded, in conjunction with G. A. Wehrli, the *Zürcher medizingeschichtliche Abhandlungen;* in Baltimore, he started the *Bulletin of the History of Medicine.* A few years ago, Professor Sigerist left Baltimore for the idyllic village of Pura (Ticino), where he pursues, in his library of over 10,000 volumes, the writing of his "History of Medicine," which will be published in eight volumes, the first of which has just been published.

TURKEY

Vaccinal Encephalomyelitis.—Ord. Prof. Ihsan Hilmi Alantar of Istanbul University children's department and his associate, Dr. Metine Bilger, reported an increase in postvaccinal encephalomyelitis. There were nine cases within three months; two occurred after mumps, three after influenza, two after measles, one after whooping cough and one after smallpox vaccination; two patients died. Four patients were 6, 12, 14 and 17 months old, respectively, and five were 3 to 12 years old. Though the associated infection varied, there was an obvious similarity in clinical and laboratory findings. In a 14 month old patient, a temperature of 42 C. (107.6 F.) developed 10 days after smallpox vaccination. She was admitted to the hospital in coma, having had convulsions for the previous 10 hours. The eyes had rolled upward; reflexes were brisk, and there was no stiffness of the neck. Spinal puncture produced a clear liquor. The Pandy test was positive, and microscopic examination revealed 36 lymphocytes per field. The patient died three hours later.

A 17 month old patient had influenza and angina for a month prior to admission. The fever persisted. During the week before admission vomiting occurred, movement in the right arm and leg was impaired, and the patient became comatose. On admission the patient had a temperature of 38 C. (100.4 F.); the pulse rate was 120; the right reflexes were brisk, and the left reflexes were normal. Corneal reflexes were absent, the Babinski sign was present on both sides. Spinal puncture yielded a clear fluid. The result of the Pandy test was positive, and microscopic examination revealed 32 lymphocytes per field. Cultures were negative. For four days the patient had three to four convulsions, each lasting five minutes. The patient died on the fourth day. The other seven patients recovered in one week to 35 days.

Brucellosis Diagnostic Standard Agglutination.—Sait Bilal Golem, D.V.M., secretary general of the Ankara Refik Saydam Institute of Hygiene, has published his investigations of brucellosis made at the institute. With the antigen obtained from the Department of Agriculture Veterinary Institute at Weybridge, England, experiments have been made at the Refik Saydam Institute of Hygiene and at the Ankara-Etlik Veterinary Biologic Institute with Professor Stableforth's standard serum, with the Refik Saydam institute rabbit serum, and with the Ankara-Etlik institute dry serum. It was found that the Weybridge Institute, the Refik Saydam Institute, and the Ankara-Etlik Institute antigens corresponded but the Stableforth antigen was less agglutinable.

Placental Graft in Eye Diseases.—Dr. Nuri Fehmi Ayberk, chief of the ophthalmology department of the Haidar Pasha Model Hospital-Istanbul, reports good results obtained in eye diseases with placental grafts, a method of therapy first used by Filatoff (Russia) in 1946. Of the 24 patients (14 women and 10 men, 16 to 83 years old) four patients had retinal detachment, three had chronic glaucoma, four had retinitis pigmentosa and 13 patients had different types of neuroretinopathy. In some patients, grafts the size of a pea were placed under the upper conjunctiva, and in some patients this technic was supplemented with placenta extract injections. The placenta, which had been aseptically removed by cesarean operation, was kept at —2 C. for five to six days; the graft was removed from the center of the placenta. The grafts were repeated two or three times after an interval of two months. In the patients with retinitis pigmentosa, the graft improved central vision 1 to 1.5; adaptation to darkness slightly improved a week after the graft. In patients that had been followed for several months, continued good results were obtained. In patients with neuroretinopathy the results were also good. In younger patients and in patients with inflammatory conditions the results obtained were twice as good as in older patients and in those with conditions of degenerative origin. The graft had no beneficial effect on patients with optic atrophy of long duration. In several cases of retinal detachment, the results obtained with the placental graft were so satisfactory that an operation became unnecessary and there was further improvement after the second graft. In patients with chronic glaucoma, the graft did not result in marked improvement; however, in one of these patients, front and side vision was attained.

According to Filatoff the distintegration substances, rather than the hormone and vitamin content of the placenta, produce the stimulating effect on the physiological functions.

BRAZIL

Priority for BCG Vaccination.—Antituberculosis work in Brazil started in 1941, and the National Campaign Against Tuberculosis was founded in 1946. This campaign has a modern, scientific aspect, and it has made a new division of zones of the country. This campaign has started working toward an increase in the number of beds, and the number has grown significantly. At the same time the campaign has been trying to spread the application of BCG vaccination, and there has been an increase in the distribution from 125,000 vials in 1945 to 571,637 in 1949. During the present administration the number of beds for tuberculous patients has been raised from 2,844 in 1944 to 7,153 in 1950 in the state of São Paulo. The expense of medical assistance and hospitals in the state of São Paulo and in the entire country suggests that other more up to date methods, such as BCG vaccination, should be used in the fight against tuberculosis.

In June 1950, there were 375,329 persons vaccinated with BCG in São Paulo. The exceptional conditions in this state, due to a large number of institutions, make it possible to carry out BCG vaccination on a large scale and to enforce Federal Law 484, which requires a certificate of this vaccination in various periods of the life of citizens.

Drs. Nogueira Martins and Pedral Sampaio, of the Liga Paulista contra la Tuberculose, suggest that priority be given to BCG vaccination, among the measures to be carried out in countries that have conditions similar to those of Brazil. Their experience over a period of 15 years with a large number of observations confirmed radiologically and clinically shows favorable results obtained with BCG vaccination in children who live in contagious areas.

MISCELLANY

THE NATIONAL CANCER INSTITUTE

Prepared by George F. Connery of the A. M. A. Washington Office

The National Cancer Institute clearly is one of the world's great centers for research on neoplastic disease.

It is one of seven organizations grouped together at Bethesda, Md. as the National Institutes of Health, but its influence extends to every state and to several foreign countries. Congress has rapidly increased the institute's annual appropriation to the point where it now totals approximately 40 times the average appropriation for the first seven years of the institute's existence. The current total budget of the National Cancer Institute is just over $20,000,000. Only about $4,650,000 is being spent for administration, publications, research, demonstrations and consultations. All the rest goes out in grants: to states for cancer control, to institutions for research and construction of facilities and to individuals to finance specialized training.

The National Cancer Institute was created by Congress in 1937. It has set for itself two major goals: ". . . first, to increase basic knowledge of cancer and, second, to increase the application of our present knowledge of how to prevent cancer deaths." Effort is directed four ways: (1) research in the institute's own laboratories, (2) grants to stimulate and support cancer research in other institutions and by individual scientists, (3) studies and demonstrations in the public health phases of cancer control and (4) training grants to medical and dental schools for undergraduate instruction. Dr. John R. Heller is the director. Responsibilities are divided among three branches and a technical services department, or administrative clearing house.

The Research Branch, supervised by Dr. Heller in the absence of a scientific director, is NCI's own laboratory, where scientists carry on scores of projects aimed at learning more about cancer. At the same time the Research Branch supplements and stimulates the work of private individuals and organizations whose cancer projects are financed by NCI grants. The Research Branch covers a wide range. The research sections, and their operations, as described by NCI are as follows:

The Epidemiology Section (Dr. Alexander G. Gilliam, chief) investigates influences which may be associated with presence or absence of cancer in humans. Case histories of a large number of women with breast and cervical cancer currently are being analyzed, along with controls, to determine whether the two groups differ in any significant respect. A similar study is being made of the relationship between lung cancer and such factors as occupation and smoking.

The Chemotherapy Section (Dr. Murray J. Shear, chief) prepares and investigates chemical substances of possible value in treating human cancer. As a preliminary, screening of about 3,000 drugs and compounds was completed in 1950; about 150 were found to damage test tumors in mice. Clinical research is under way with alpha-peltatin and beta-peltatin, two compounds discovered by this section's scientists in a plant extract.

The Endocrinology Section (Dr. Roy Hertz, chief) investigates the role of hormones in cancer causation, of vitamins in stimulating effect of hormones and in use of hormones and antivitamin substances in treating cancer. A water-soluble form of female sex hormone has been developed; this can be injected directly into the blood stream, making possible much higher blood levels of hormone in breast and prostatic cancer patients than previously attainable. In addition, observations on the favorable effects of progesterone in cervical cancer have offered a therapeutic lead.

The Biochemistry Section (Dr. Jesse P. Greenstein, chief) investigates chemical differences between normal and cancer tissue, looking toward new approaches to therapy. Projects include comparative metabolism enzyme studies; comparison of proteins, fats and other tissue components common to normal and malignant states, and studies of metabolism and nutrition of normal and cancer tissues, using isotopes as tracers. This section worked out techniques for mass-producing all essential amino acids for intravenous feeding. Applying this process, several commercial firms now are preparing to market amino acids at greatly reduced prices.

The Biophysics Section (Dr. Egon Lorenz, chief) studies biologic effects of penetrating radiations, as a means of inducing cancer and as a form of treatment. One important finding is that systematic effects seem to play a significant role in radiation treatment of a transplanted mouse lymphosarcoma. Irradiation of the tumor alone has little effect, but when the whole body is irradiated with the same dose as given to the tumor alone a profound regression of the tumor is noted. Also, it was learned that when the spleen is protected by a lead shield, the whole body irradiation dose could approximately be doubled, with the result that the transplanted tumor did not recur in about 70 per cent of the animals.

The Pathology Section (Dr. Harold L. Stewart, chief) explores and evaluates the transformation in cells and tissues as cancer develops and becomes established. Various tumors similar to those in man are induced in experimental animals by chemical carcinogens, and the histopathogenesis of these tumors is studied during all stages of development. Current interest is focused on eliciting and defining the earliest neoplastic changes and in correlating them with those occurring in human beings. For example, the development of induced carcinoma of the cervix in mice and spontaneous cervical cancer in women are being followed by cervical smears and the processes compared.

The Biology Section (Dr. Howard B. Andervont, chief) studies the problems of growth, differentiation and cell physiology by means of tissue culture, transparent chambers in mice and other techniques. Researchers have demonstrated that the thymus gland is implicated in mouse leukemia, probably as a bridge between the leukemia stimulus and the disease. In certain strains of mice, total removal of the thymus prevented leukemia in most of the animals.

A total of 377 persons are employed in the research branch, which for the current year will spend $3,537,000, all to further NCI's own projects, none going for grants. Opportunities for this branch will be greatly increased with completion, probably in 1952, of the Clinical Center at Bethesda, where 125 beds will be reserved for selected cancer patients.

The Grants and Fellowships Branch, with Dr. R. G. Meader as chief, handles grants to nonfederal institutions and individuals for support of research and of research facilities and training. These grants total almost $9,000,000 this year, but more than half is earmarked for payments on construction projects authorized by Congress over the past three years to increase clinical and laboratory space and equipment for cancer research. There is no money this year for new construction grants. The $16,303,000 previously authorized has been allocated to 47 hospitals, medical schools and cancer research institutions in 27 states and the District of Columbia.

Research supported by the grants program covers most of the wide area of investigation dealing with the causation of tumors, with their growth and dependence on or independence of the rest of the body and with special attempts to develop better diagnostic and therapeutic methods. The function of the branch is to stimulate cancer research and to disseminate knowledge about it. Close liaison is maintained with the American Cancer Society and all other agencies that make grants to support cancer research. Although there are no legal or governmental ties between ACS and the institute, a constant exchange of information insures correlation of government and private programs. The society's board usually contains an official of the institute, and ACS representatives in turn are brought in as institute consultants.

Cancer research funds, like all those awarded for research by the Public Health Service, are not distributed geographically or by population. As an example, institutions in one state (New York) in 1950 received $579,632, or 20.4 per cent of the research grant money appropriated that year, whereas another (Oregon) received only $5,400, or 0.2 per cent of the total.

According to NCI, these figures reflect the situation in each state. Oregon has only one research application, and it was granted in full. New Yorkers asked for considerably more, but not all was granted. The number and dollar value of research grants is said to be in fairly close proportion to the total requested, from state to state, and to the research potential of a region.

In general, the policy has been to support work in recognized cancer research centers where prompt productivity can be expected, while the long range effort is to plant as much money as possible in other areas where it might kindle interest in cancer work, particularly fundamental research.

Through the Cancer Control Branch (Dr. R. F. Kaiser, chief) NCI maintains contact with states, assisting their cancer control activities with demonstrations, consultations and educational programs as well as grants. In amount of grant money distributed ($7,000,000 this year), the Control Branch is second only to the Research Grants Branch. Its staff numbers about 50. The largest single item in its budget is the $3,200,000 set aside for use of states in their campaigns to detect and control cancer. Under the law, the maximum a state health department may receive is established by the population-income-cancer incidence formula, which makes more money available per capita to relatively poor states. The same two states, New York and Oregon, which were used as examples of uneven distribution of cancer research funds are examples of what happens when cancer control funds are passed out. New York's population is about 10 times that of Oregon, yet it received 100 times as much money for cancer research grants. But for control work, New York got only eight and one-half times as much money as Oregon, which meant that the federal government actually was spending more money per capita to help control cancer in Oregon than it was in New York.

Cancer control is the most important program over which the National Advisory Cancer Council does not have jurisdiction. Allocation is made by the staff and director of the Control Branch, on recommendations by a 10 member Cancer Control Committee, established administratively. Represented on the committee are state health departments, medical schools, the American Cancer Society, the American College of Surgeons and other organizations.

Dr. Noka B. Hon, head of the State Aid Section, emphasized that every effort is made to have the physician become the "key man in every situation where federal cancer control funds are expended." Dr. Hon noted that every cancer control program aided by federal funds must have the prior approval of the local medical society, and that patients may be hospitalized for not to exceed three days, and for diagnostic purposes only.

Operating under the Control Branch is a section devoted to studies in environmental and occupational cancer—one area where demonstrable progress has been made. Dr. W. C. Hueper is chief of the Cancergenic Studies Section Control Branch.

Also a part of the Control Branch, under the direction of Dr. J. E. Dunn, is the effort to develop satisfactory cancer diagnostic tests, whose purpose is the detection of possible cancer in mass groups of the public. In work on diagnostic tests and environmental and occupational cancer, NCI's scientists cooperate with state officials, with nongovernment organizations and with researchers who are individually pursuing projects related to these fields. This branch also distributes grants to medical and dental schools to stimulate and coordinate the teaching of cancer control and detection and to stimulate interest in research methods. This year $2,040,000 is being spent on this program, with 78 of the country's 79 medical schools participating. Four-year schools get $25,000, two-year schools $5,000. The Cancer Council passes on these. A total of about $2,000,000 is being spent by the Control Branch this year on these additional programs: demonstrations and consultations, $275,000 (the Cancer Control Committee advises on this program, but neither it nor the Council passed on individual projects), and special projects (recommended by the Advisory Council) $929,000; clinical traineeships for physicians, $372,000 (physician gets $10 a day, must spend at least half time on cancer work; Council establishes policies, but screening is done by staff groups).

The general public, and particularly the medical profession, are represented in management of National Cancer Institute through the National Advisory Cancer Council. By law the council is authorized to review research projects or programs and to recommend prosecution of those it considers promising; to collect information on cancer research going on anywhere, by personal investigation if necessary; to review applications for research grants; to recommend acceptance of conditional gifts to the NCI, and in general to advise the Surgeon General of PHS on all operations of NCI.

The council now is composed of 15 members, with the Surgeon General as chairman. Until recently membership was nine, with the six appointed members "leading medical or scientific authorities . . . outstanding in the study, diagnosis or treatment of cancer." The chief medical officer of Veterans Administration and a medical officer designated by the Secretary of Defense also serve on the council as ex-officio members, making, with the Surgeon General, a total of 15 members. The four-year appointments are made by the Surgeon General, with approval of the Administrator of the Federal Security Agency. The Surgeon General can act only on the recommendation of the council on (*a*) research grants, (*b*) grants to medical and dental schools, (*c*) special projects and (*d*) construction grants. The council is not authorized to act in fellowship or clinical traineeship grants or grants to states under the control program.

The council meets three times a year. Prior to the meetings, applications are screened by study sections, made up of experts in the particular field, primarily nongovernmental but generally including representatives of the Veterans Administration, the Public Health Service and usually one of the military services. Study sections are concerned with the scientific merits of a particular project, rather than its importance relative to competing projects. However, the sections place a priority on each application. It is the duty of study groups to assemble all essential information for the benefit of the council, visiting the applicant if necessary to round out their information. Assisting each study group is an executive secretary (a trained PHS scientist). Generally, according to Dr. Meader, the study group has its report in the hands of each member of the council about one month before council meetings.

The council determines its own method of procedure as well as the length of its meetings. Dr. Meader said the council approves about 60 per cent of the applications. He also noted an increasing tendency for the study groups and the council to apply the same criteria. They disagree now on about one grant in 10; they formerly diagreed on one in four.

Records show that in only one case has the Surgeon General rejected a project approved by the council. Later information showed that other government funds were supporting a similar project. This close agreement is brought about through advance staff work and the fact that the Surgeon General, who has final veto power, participates in council deliberations.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Governmental Hospital: Liability to Pay Patient for Agent's Negligent Acts.—The plaintiff sued for damages for personal injuries resulting from the alleged negligence of the defendant hospital while she was a paying patient therein. From a trial court ruling in favor of the defendant, the plaintiff appealed to the Supreme Court of Appeals of West Virginia.

The defendant hospital was created by a 1943 statute authorizing the County Court of Monongalia County to establish, equip and maintain a hospital to be known as Monongalia General Hospital. The controlling question, said the Supreme Court of Appeals, is whether the defendant hospital is a public corporation and is engaged in the performance of a governmental function. The plaintiff contended that in the operation of the hospital, under the statute, and in accepting and treating her as a patient for hire, the defendant was not engaged in the discharge of a governmental function, but acted in a proprietary capacity and is liable for the damages caused by the negligence of its agents and employees. The defendant hospital insisted that it is a public corporation, that in the operation of the hospital it was engaged in the performance of a governmental function, and that it is immune from liability for the negligence of its officers, agents and employees.

It is obvious, said the court, that the defendant is a public corporation. Its trustees were incorporated and the hospital was established by the statute. The title to the hospital property, by the terms of the statute, is vested in the County Court of Monongalia County, which holds the property of the county, a political subdivision of the State, for the benefit of the county or its citizens and inhabitants, in trust for public purposes. Furthermore, continued the court, the contention of the plaintiff, that the operation of the hospital by the defendant, when she, a paying patient, was injured, was for profit and in a proprietary capacity instead of in the performance of a governmental function, is not well founded. Neither the public character of the defendant nor the nature of its operation was changed or affected by the payment of dues or charges for the treatment which the plaintiff received as a patient. Numerous decisions of the appellate courts of other jurisdictions so hold and in a prior West Virginia case the Supreme Court of Appeals said: "The fact that one is a paying patient does not alter the [general] rule. Such patient is the recipient of the donors' gratuity only in a lesser degree than one who makes no payment. The hospital building, with its equipment, management, and its great possibilities for the alleviation of suffering, was provided by charity. In using the organization made possible and supported by that charity, a paying patient, to that extent, benefits by the charity."

Continuing, the Supreme Court of Appeals said that the basic test in determining whether a public corporation, in its operations, is engaged in the discharge of a governmental function or is acting in a propriety capacity is whether the act performed is for the common benefit of the public or is for the special benefit or profit of the corporation. It is clear beyond question, the court concluded, that the operation and the maintenance of its hospital by the defendant are for the common benefit of the public generally and are not for the special benefit or the private gain or profit of the defendant, the trustee, or the County Court of Monongalia County.

In cases involving liability of a hospital for the negligence of its officers and agents, the character of the particular institution, whether it is public, charitable, or private, is important for the reason that legal principles which apply to a public hospital are different from those applicable to a hospital operated and maintained for private gain or profit. A former West Virginia case, in recognizing the distinction between a private hospital and a public hospital with respect to such liability, used this language: "The policy of the law forbids liability of a state or municipal hospital for negligence of its servants and physicians; it being a governmental agency." The plaintiff insists, however, that the language of the statute which charges that the defendant hospital board shall be a corporation and may sue and be sued, authorizes this action. The argument is not persuasive. The provision that a corporation may sue and be sued does not create a cause of action or impose liability for its negligence or confer upon a person injured by such negligence the right to maintain an action for damages against it. The authority conferred upon a public corporation by statute to sue and be sued does not render it liability for acts for which no liability is imposed by law. Accordingly the judgment in favor of the defendant hospital was affirmed.—*Shaffer v. Monongalia General Hospital, 62 S.E. (2d) 795 (West Virginia 1950).*

MEDICAL MOTION PICTURES

The Male Sex Hormone: 16 mm., color, sound, showing time 22 minutes. Produced by Sturgis-Grant Productions, Inc., 314 East 46th St., New York 17. Sponsored by and procurable on loan from Schering Corporation, 2 Broad St., Bloomfield, N. J.

This motion picture begins with a brief exposition of the historical interest in the subject and leads up to our present day knowledge of anatomy and physiology of the male genital organs. The relation of the pituitary gonadotropin, LH or ICSH, and the production of testosterone is shown by animation; a brief section on steroid chemistry is also given. The physiologic effects of the use and the lack of testosterone are discussed. Types of hypogonadism in early and late years are shown with pictures of certain cases seen in the clinic. A typical course of testosterone therapy in a 15 year old boy is described in detail, and the patient's progress is followed. The fact that androgen therapy is assuming importance in the field of gynecology is mentioned, and certain important metabolic effects following testosterone administration are briefly discussed.

The film introduces two controversial subjects. The first occurs in the discussion of the use of the hormone in the treatment of the male. The Council on Pharmacy and Chemistry does not recognize testosterone for treatment of the male climacteric, nor is the use of the hormone recognized for the treatment of circulatory symptoms. In the film, the use of testosterone is advocated for dysmenorrhea; this also is not recognized. All other indications mentioned are acceptable and the film itself is an excellent presentation of the physiologic background for the production of the male sex hormone and of its effect. However, the use of the trocar for the introduction of pellets is not universally accepted, since bleeding may occur in the area of insertion of the trocar and prevent absorption of the pellets. Therefore, many prefer the purely surgical approach of making an incision, stopping all bleeding, inserting the pellets and closure by surgical methods.

Although this film may be of general interest to the medical profession, it cannot be entirely recommended in its present form. The photography and narration are very good.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

Compiled by the Council on Medical Education and Hospitals for the Period July 1, 1951 to Jan. 15, 1952

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ALLERGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	6 Month Personal Course in Allergy	By appointment, full time	$500.00
	1 Month Personal Course in Allergy	1st of every month, full time	200.00
	Personal Course in Allergy and Related Conditions	September 26, 10 weeks, part time	125.00
Wayne University College of Medicine, 1512 St. Antoine, Detroit 26, Mich. At: Receiving Hospital	Allergy Clinic and Conference	September, 12 weeks, part time	25.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 36 Allergy	November 26-December 10, part time	40.00
At: Montefiore Hospital	Medicine PM 68 Allergy	September 13-December 6, part time	50.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Beth El Hospital	Allergy I	October, 9 sessions, part time	30.00
At: Kings County Hospital	Allergy II	October, 9 sessions, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Allergy	Arranged, 2 months, part time	50.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University Hospital	5415-A Allergy	September 17-October 5, full time	225.00
At: Bellevue and University Hospitals	599-A Allergy for Otolaryngologists	November 5-December 14, 6 weeks, part time	75.00
University of Pittsburgh School of Medicine, 3941 O'Hara St., Pittsburgh, Pa.	Allergy Clinic and Laboratory	October 15-20, full time	100.00
	ANATOMY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Surgical Anatomy	October 3-June 4, part time	100.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif. At: Stanford Hospital	Surgical Anatomy	September 10-14, part time, afternoons	75.00 plus $20.00 lab. fee
	Surgical Anatomy	September 10-14, part time, mornings	75.00 plus $20.00 lab. fee
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Anatomy of the Extremities on the Cadaver	October 3, 10 sessions, part time	125.00
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore, Md.	General Anatomy	Arranged	Arranged
	Surgical Anatomy	January 29-June 9, part time	150.00
	Anatomy of Head and Neck as Applied to EENT	October 1-February 28, part time	75.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Surgical Anatomy	October 15-December 7, 8 weeks, part time	250.00
Wayne University College of Medicine, 1512 St. Antoine, Detroit 26, Mich.	Surgical Anatomy[27]	January, 24 weeks, part time	70.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Applied Anatomy for the General Surgeon	Arranged, 250 hours	375.00
	Anatomy of the Thorax	Arranged, 100 hours	150.00
	Anatomy of the Abdomen	Arranged, 100 hours	150.00
	Applied Anatomy for the Otolaryngologist	Arranged, 150 hours	275.00
	Applied Anatomy of the Urogenital System	Arranged, 130 hours	300.00
	Applied Anatomy for the Anesthetist	Arranged, 125 hours	275.00
	Anatomy for the Orthopedic Surgeon	Arranged, 100 hours	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Surgical Anatomy	Arranged, 2 weeks, part time	150.00
	Head and Neck Dissection	Arranged, 4 weeks, part time	150.00
	Surgical Anatomy of Nose and Accessory Sinuses	Arranged, 4 weeks, part time	150.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.	411-A Anatomy of the Head and Neck	September 24-December 14, 12 weeks, part time	90.00
	412-A Anatomy of the Thorax and Its Viscera	January 2-March 21, 12 weeks, part time	90.00
	413-A Anatomy of the Abdomen	September 24-December 14, 12 weeks, part time	90.00
	413-B Anatomy of the Abdomen	January 2-March 21, 12 weeks, part time	90.00
	414-A Anatomy of the Female Pelvis	September 24-December 14, 12 weeks, part time	90.00
	415-A Anatomy of the Genitourinary System	January 2-March 21, 12 weeks, part time	90.00
	416-A Anatomy of the Musculoskeletal System	January 2-March 21, 12 weeks, part time	90.00

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Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ANESTHESIOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Anesthesiology	Every 2 months, 4 months, full time	$300.00
University of Southern California, University Park, Los Angeles 7, Calif. At: Los Angeles County Hospital	Anesthesia #891	Continuously, 1st of any month, one month, full time	100.00
	Anesthesia #892	Continuously, arranged, 3 months, full time	300.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Practical 2 Week Course in Spinal and Intravenous Anesthesia	Every 2 weeks by appointment, full time	150.00
	Practical 1 Month Course in Nitrous Oxide and Ether Anesthesia	1st of every month, by appointment, full time	125.00
	Practical 1 Month Course in Ether, Nitrous Oxide, Ethylene and Cyclopropane Anesthesia	1st of every month, by appointment, full time	200.00
	Practical 2 Week Course in Endotracheal Anesthesia	Every 2 weeks, by appointment, full time	150.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Newark City Hospital	Regional Anesthesiology	Arranged, 10 sessions, part time	100.00
New York State Society of Anesthesiologists, 137 W. 11th St., New York 11, N. Y. At: Various Hospitals in N. Y. State	Anesthesiology	Continuously, hours arranged	None
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Anesthesia PM 30, Diagnostic and Therapeutic Nerve Blocking	October 16-November 16, part time	50.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: St. Catherine's Hospital	Diagnostic and Therapeutic Nerve Blocking	October, 6 weeks, part time	75.00
At: Jewish Hospital	Anesthesiology	October, 6 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Clinical Anesthesiology	Arranged, 3 months, full time	200.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Applied Anesthesia	October and January, 3 months, full time	300.00
	Anesthetic Technique	October and January, 6 weeks, full time	100.00
	Regional and Spinal Anesthesia	October and January, 6 weeks, full time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue Hospital	511-A Anesthesiology (for Specialists)	Any Monday, September through June, 2 weeks, full time	150.00
	512-A Regional Anesthesiology	September 4-15, 2 weeks, full time	200.00
	512-B Regional Anesthesiology	January 7-18, full time	200.00
	513-A Anesthesiology	September 4, arranged, 12 months	700.00
	514-A Anesthesiology	September 24-December 14, full time[28]	300.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Anesthesiology	October to May, full time	800.00
	Regional Anesthesia	September 10-22, full time	200.00
At: Graduate Hospital and Private Offices	Segmental Neuralgias, Relief by Regional Anesthesia	Arranged, 3 weeks, full time	200.00
	ARTHRITIS		
The Surgeon General's Office, Dept. of the Army, Washington 25, D. C. At: Army and Navy General Hospital, Hot Springs National Park, Ark.	Arthritis and Allied Rheumatic Diseases[11,14b]	November 5-9, full time	None
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Hospital	Arthritis	October, 8 sessions, part time	30.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University Hospital	5414-A Arthritis and Allied Rheumatic Disorders	July 9-20, full time	90.00
	5414-B Arthritis and Allied Rheumatic Disorders	October 29-November 9, full time	90.00
	BACTERIOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Review of Microbiology (Bacteriology) a Basic Course	October 4, 5 sessions, part time	75.00
Duke University School of Medicine, Durham, N. C. At: Duke University and Hospital	Medical Mycology	July 2-28, full time	50.00
	BASIC SCIENCE		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Basic Science Courses, Neurology and Neurosurgery, Otolaryngology, Surgery and Surgical Specialties	October 1-June 7, 8 months, full time	800.00
Michael Reese Hospital Postgraduate Medical School, 29th St. and Ellis Ave., Chicago 16, Ill.	Application of Physiology and Biochemistry to Medicine	October 3-March 28, 25 sessions, part time	150.00
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore 1, Md.	Basic Sciences as They Apply to Obstetrics	January, 20 weeks, full time	375.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Basic Science [illegible]gology, [illegible] Surgery, [illegible]cine, Anesthesiology, Obstetrics and Gynecology	October, 9 months, full time	710.00[9]
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Basic Medical Sciences	October to May, full time	800.00
University of South Dakota, School of Medicine, Vermillion, S. D.	PG Basic Science Course	September, 5 months, full time	75.00
	BIOCHEMISTRY		
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Nurses Home, Newark City Hospital	Biochemistry	Weekly, 14 sessions, part time	100.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Beth El Hospital	Clinical Biochemistry	October, 10 sessions, part time	30.00
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg., Houston, Texas At: M. D. Anderson Hospital for Cancer Research	Metabolism of Amino Acids and Related Substance	September 27-January 17, 15 sessions	15.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	CARDIOVASCULAR DISEASE		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Cardiology	January 8-March 11, 10 weeks, part time	$ 50.00
University of Southern California, University Park, Los Angeles 7, Calif.			
At: Los Angeles County Hospital	Cardiology and Vascular Disease #832[29]	September 17, 12 months, full time	100.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif.			
At: San Francisco Hospital	Cardiology	September 10-14, part time	75.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Cardiovascular Diseases	September 19, 10 sessions, part time	80.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: Beth Israel Hospital	Cardiology 1	January 28-May 10, full time	500.00[16]
At: Boston City Hospital	Cardiology 2	October 31-January 16, 12 sessions, part time	75.00[16]
At: Peter Bent Brigham Hospital	Clinical Heart Disease	July 2-31, full time	200.00[16]
At: Massachusetts General Hospital	Cardiovascular Disease	October 1-September 30, 12 months, full time	800.00[16]
Essex County Medical Society, 38-40 Clinton St., Newark, N. J.			
At: Seton Hall Campus, South Orange, N. J.	Cardiology	Weekly, 15 sessions, part time	100.00
	Cardiac Arrhythmias	Weekly, 10 sessions, part time	100.00
At: Newark City Hospital	Vascular Diseases, Medical and Surgical Treatment	Weekly, 12 sessions, part time	75.00
New Jersey Academy of General Practice, Collingswood, N. J.[26]			
At: St. Michael's Hospital, Newark, N. J.	Cardiology for the General Practitioner	30 sessions, part time	None
St. Francis Sanatorium for Cardiac Children, Roslyn, N. Y.	A Course of Seminars on Modern [illegible] Nature and Fever and	Once a month, October-May, part time	No fee
Columbia University, 630 W. 168th St., New York, N. Y.			
At: Mt. Sinai Hospital	Medicine PM 29, Clinical Cardiology	October 17-December 19, part time	45.00
	Medicine PM 31, Cardiovascular Diseases	October 19-December 15, part time	125.00
	Medicine PM 46, Bedside Clinics in Heart Disease	October 15-December 3, part time	30.00
	Medicine PM 48, Bedside Diagnosis and Treatment of Heart Disease	October 9-December 11, part time	45.00
At: Montefiore Hospital	Medicine PM 60, Cardiology I	September 27-June 5, full time	300.00
	Medicine PM 62, Cardiology II	September 18-January 22, part time	150.00
	Medicine PM 63, Cardiology III	September 25-February 5, part time	200.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Cardiology	Arranged, 20 sessions, part time	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Diagnosis and Treatment of Diseases of the Heart	Arranged, 3 weeks, part time	75.00
New York State Department of Health, 76 State St., Albany 1, N. Y.			
At: Medical Schools Throughout the State	Cardiovascular Disease	Throughout academic year, 3 days to 4 weeks	Not given
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: University Hospital	5417-A Cardiology	October 22-26, full time	75.00
At: Beth Israel Hospital	731-A Cardiovascular Diseases	September 20-December 13, 12 sessions	50.00
	731-B Cardiovascular Diseases	January 10-March 27, 12 sessions	50.00
New York Academy of Medicine, 2 East 103d St., New York, 29, N. Y.	Disorders of the Circulatory System	October 8-19, 2 weeks, full time	10.00
Cleveland Area Heart Society, 417 Public Square Bldg., Cleveland 13, Ohio			
At: Western Reserve University School of Medicine	Resuscitation of Patients Who Die in the Operating Room	September 21-22, October 19-20, November 16-17, December 14-15, January 18-19	40.00[20]
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa.			
At: Massachusetts General Hospital, Boston	Recent Advances in the Treatment of Cardiovascular Disease	November 12-17, full time	30.00 mbrs. A.C.P. 60.00 non-mbrs.
At: Frank E. Bunts Educational Institute of the Cleveland Clinic Foundation, Cleveland, O.	Diagnosis and Treatment of Cardiovascular Disease	October 22-28, full time	30.00 mbrs. A.C.P. 60.00 non-mbrs.
At: University of Texas School of Medicine	Cardiovascular Diseases	December 10-15, full time	30.00 mbrs. A.C.P. 60.00 non-mbrs.
Hahnemann Medical College and Hospital of Philadelphia, 235 N. 15th St., Philadelphia 2, Pa.	PG Course in Cardiology	October-May, part time	100.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Cardiology	October and January, 8 weeks, part time	80.00
	DERMATOLOGY AND SYPHILOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Dermatology	January 2-March 19, part time	40.00
University of Southern California, University Park, Los Angeles 7, Calif.			
At: Los Angeles County Hospital	Dermatology and Syphilology #860[20]	September 17, 12 months, full time	1,000.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif.[19]			
At: Stanford Hospital	Practical Dermatology	September 10-14, part time	75.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	12 Month Clinical Course in Dermatology	By appointment, full time	1,000.00
	Intensive 2 Weeks Course in Dermatology	October 15, full time	100.00
	Clinical Refresher Course in Dermatology	Every Monday, full time, 2 or more weeks	75.00 2 wks. 125.00 4 wks.
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: Massachusetts General Hospital	Dermatology and Syphilology I	October 1-September 30, 12 months, full time[16]	800.00[16]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Dermatology I	November 5-9, full time	40.00

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Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
DERMATOLOGY AND SYPHILOLOGY—Continued			
Wayne University College of Medicine, 1512 St. Antoine, Detroit 26, Mich.	Dermatopathology	September, 12 weeks, part time	$50.00
	Seminar in Dermatopathology	Quarterly, 12 weeks, part time	15.00
At: Receiving Hospital	Seminar in Dermatology	Quarterly, 12 weeks, part time	15.00
	Superficial Mycoses	December, 12 weeks, part time	30.00
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.	Dermatology for General Physicians	December 14-15, full time	15.00
Cornell University Medical College, 1300 York Ave., New York 21, N. Y.	Courses in Exfoliative Cytology (Cancer Detection)	September 17-December 14, 3 months	300.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Montefiore Hospital	Dermatology PM 60, Common Skin Diseases and Treatment	October 8-December 10, part time	40.00
	Dermatology PM 61, Relation of Skin to Internal Medicine	September 17-January 14, part time	55.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Beth El Hospital	Diagnosis and Treatment of Common Skin Diseases	October, 8 sessions, part time	20.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Dermatology and Syphilology for the General Practitioner (Seminar)	Arranged, 5 days, full time	75.00
	Dermatology and Syphilology for Specialists (Seminar)	Arranged, 5 days, full time	75.00
	Dermatologic Histopathology (Seminar)	Arranged, 5 days, full time	75.00
	Training for Specialization in Dermatology and Syphilology	October 1, 3 years, full time	1,000.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: Bellevue and University Hospitals	522-A Seminar in Dermatology and Syphilology	January 14-18, full time	100.00
	524-A Dermatology and Syphilology for Pediatricians (Specialists)	September 10-14, full time	100.00
	525-A Dermatology and Syphilology	October 1-September 27, 12 months, full time	700.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Dermatology-Syphilology	October to May, full time	800.00
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg., Houston, Texas			
At: Robert B. Green Memorial Hospital	Common Diseases of the Skin	October 26, 10 sessions	10.00
At: M. D. Anderson Hospital for Cancer Research	Common Diseases of the Skin	December 13, 5 sessions	5.00
At: Shannon West Texas Memorial Hospital	Common Diseases of the Skin	December 13, 5 sessions	5.00
DIABETES			
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Medical and Surgical Diabetes	September 12, 10 weeks, part time	80.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: New England Deaconess Hospital	Diabetes Mellitus in Relation to General Medicine	October 8-12, full time	50.00[16]
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 38, Course in Nutrition and Diabetes	November 29-December 13, full time	40.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Sanitarium and Hospital for Chronic Diseases	Complications of Diabetes Mellitus	October, 12 sessions, part time	20.00
ELECTROCARDIOGRAPHY			
Delaware Academy of General Practice, Wilmington, Del. At: Wilmington General Hospital	Electrocardiographic Interpretation[48]	Sept. 12, 8 sessions, part time	Not given
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	2 Week Personal Course in Electrocardiography and Heart Disease	July 16 and October 22, full time	150.00
	Personal Course in Electrocardiography and Heart Disease	October 3, 10 weeks, part time	125.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Electrocardiography	August 20-September 1, full time	150.00
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Electrocardiography	November 26-Dec. 8, 2 weeks	100.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Electrocardiography I	December 3-7, full time	40.00
	Electrocardiography II	January 14-16, full time	25.00
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich.	Electrocardiographic Diagnosis	August 27-September 1, full time	75.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J.			
At: Seton Hall Campus, South Orange, N. J.	Unipolar Lead Electrocardiography	Arranged, 12 sessions, part time	75.00
	Electrocardiography	Arranged, 15 sessions, part time	100.00
At: Newark City Hospital, Newark, N. J.	Clinical Electrocardiography	Arranged, 12 sessions, part time	100.00
	Advanced Clinical Electrocardiography	Arranged, 10 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 41, Intensive Course in Elementary Electrocardiography	September 17-22, full time	60.00
	Medicine PM 42, Intensive Course in Advanced Electrocardiography	September 24-29, full time	60.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23]			
At: Jewish Hospital	Electrocardiography for the General Practitioner	October, 6 weeks, part time	30.00
At: Beth El Hospital	Basic Electrocardiography	October, 6 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Electrocardiography	Fall, 2 weeks, part time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Electrocardiographic Interpretation	Arranged, 2 weeks, part time	75.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: University Hospital	5423-A Electrocardiography	September 24-28, full time	75.00
At: Beth Israel Hospital	732-A Electrocardiography	September 20-December 13, 12 sessions	35.00
	732-B Electrocardiography	January 10-March 27, 12 sessions	35.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa. At: Emory University School of Medicine, Emory University, Ga.	Electrocardiography	October 29-November 3, full time	30.00 A.C.P. Mbrs. 60.00 non-mbrs.
University of Washington School of Medicine, Seattle 5, Wash.	Electrocardiography	July 19-21, full time	30.00

References will be found on page 589.

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ELECTROENCEPHALOGRAPHY		
Columbia University, 630 W. 168th St., New York, N. Y. At: Columbia-Presbyterian Medical Center	Neurology PM 2, Clinical Electroencephalography and Electromyography	3 months, starting October 1 and January 2, full time	$150.00
At: Mt. Sinai Hospital	Neurology PM 33, Clinical Electroencephalography	October 4-January 17, part time	60.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue Hospital	642-A Electroencephalography	Arranged, 8 weeks, part time	300.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Electroencephalography	Arranged, 2 weeks, full time	200.00[15]
	ENDOCRINOLOGY		
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif. At: Stanford Hospital	Endocrinology	September 10-14, part time	75.00
Chicago Medical Society, 30 N. Michigan Ave., Chicago, Ill. At: Thorne Hall, Chicago	Endocrine and Metabolic Disorders	October 15-19, full time	60.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Diseases of the Endocrines, Physiology and Diagnostic Methods	July 9-20, full time	100.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Pediatric Endocrinology	October 1-6, full time	75.00[16]
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Seton Hall Campus, South Orange, N. J.	Endocrinology	Arranged, 6 sessions, part time	40.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 39, Endocrinological Diseases	October 18-November 8, full time	30.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Sanitarium and Hospital for Chronic Diseases	Recent Advances in Endocrinology	October, 7 weeks, part time	30.00
At: Jewish Hospital	Disorders of the Endocrine System Gynecologic Endocrinology	October, 7 weeks, part time October, 10 sessions, part time	40.00 20.00
At: Beth El Hospital	Endocrine Disorders in Children and Adolescents	October, 8 sessions, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Endocrinology	Arranged, fall, 2 weeks, full time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University Hospital	5422-A Endocrinology 5422-B Endocrinology	July 23-27, full time November 12-16, full time	60.00 60.00
Association for the Study of Internal Secretions, 1200 N. Walker St., Oklahoma City, Okla. At: Olympic Hotel, Seattle, Wash.	PG Assembly in Endocrinology Including Diabetes	July 2-7, full time	75.00
	ENDOSCOPY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	10 Day Practical Course in Cystoscopy	July 9, 23, August 6, 20, September 10, October 8, 22, November 5, 26, January 7	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Endoscopy	July 1-June 30, throughout the year by arrangement, 3 months or longer, full time	375.00[16] 3 months 125.00 each additional month
Columbia University, 630 W. 168th St., New York, N. Y. At: [illegible] cal Center	Medicine PM 2, Gastroscopy	Arranged, 2 months, part time	250.00
New Yor[illegible] d Fifth Ave. Hospitals, 20 E. 1[illegible]	Gastroscopy Gastroscopy (Advanced)	Arranged, 2 weeks, part time Arranged, 5 weeks, part time	200.00 200.00
New Yor[illegible] and Hospital, 345 W. 50th St, [illegible]	Bronchoscopy	Arranged, 4 weeks, part time	150.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue and University Hospitals	595-A Bronchoscopy, Esophagoscopy and Surgery of the Larynx and Neck[30]	January 14-25, full time	200.00
Temple University School of Medicine, 3400 N. Broad St., Philadelphia 40, Pa.	Bronchoesophagology Laryngeal Surgery	Fall, 2 weeks, full time Fall, 2 weeks, full time	250.00 250.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	September and January, 2 weeks	250.00
	FORENSIC MEDICINE		
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue Hospital	531-A Forensic Medicine	September 24, 9 months, full time[31]	700.00
	FRACTURES		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Intensive 2 Week Course in Fractures and Traumatic Surgery Special Course in Fractures Clinical Course in Fractures	October 8, full time October 10, 10 sessions, part time 1st of every week, 1 or 2 weeks full time	125.00 125.00 50.00 1 wk. 100.00 2 wks.
State University of Iowa College of Medicine, Iowa City, Iowa	Fractures	October, 1 day	Not given
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Treatment of Fractures and Other Traumatic Conditions	October 22-31, full time	150.00[16]
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Fractures and Allied Trauma	Fall, 4 weeks, full time	200.00
	GASTROENTEROLOGY		
University of Southern California, University Park, Los Angeles 7, Calif. At: Los Angeles County Hospital	Gastroenterology 2844	September 17, 12 months, full time	1,000.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	2 Week Personal Course in Gastroscopy and Gastroenterology 2 Week Course in Gastroenterology Personal Course in Gastroenterology	July 16, September 10, October 22, full time October 15, full time September 12, 10 sessions, part time	200.00 100.00 100.00

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	GASTROENTEROLOGY—Continued		
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich. At: Receiving Hospital	*Gastroenterology*	Quarterly, 12 weeks, part time	$ 15.00
Columbia University, 630 W. 168th St., New York, N. Y. At: *Montefiore Hospital*	Medicine PM 70, Gastroenterology	September 18-January 22, part time	75.00
National Gastroenterological Association, 1819 Broadway, New York, N. Y. At: Drake Hotel, Chicago	Course in Postgraduate Gastroenterology	September 20-22, full time	Not given
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Hospital	Gastroenterology	October, 6 weeks, part time	20.00
	Diarrheal Diseases	October, 10 sessions, part time	20.00
At: Greenpoint Hospital	Gastroenterology	October, 8 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	*Gastroenterology*	Arranged, 1 month, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University Hospital	5421-A Gastroenterology	October 15-26, full time	115.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Rd., Portland 1, Ore.	Gastroenterology	*October 22-26, full time*	50.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa. At: Tulane University School of Medicine, New Orleans, La.	Gastroenterology	November 12-17, full time	30.00 A.C.P. Mbrs. 60.00 non-members
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Gastroenterology	October to May, full time	800.00
	GERIATRICS		
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 47, Geriatrics	October 4-January 24, part time	65.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue and University Hospitals	5426-A Geriatrics	November 7-9, full time	40.00
	HEMATOLOGY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Hematology	September 19, 10 sessions, part time	100.00
	1 Week Personal Course in Hematology	June 25, full time	100.00
Michael Reese Hospital Postgraduate School, 29th St. and *Ellis Ave., Chicago 16, Ill.*	Hematologic Diagnosis	July 23-August 4, full time	100.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Hematology I	*December 10-14, full time*	40.00
Wayne University College of Medicine, 1512 St. Antoine, Detroit 26, Mich.	Beginning Hematology	September, 12 weeks, part time	50.00
	Advanced Hematology	December, 12 weeks, part time	50.00
	Blood	December, 24 weeks, part time	30.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 35, Hematology	October 16-December 11, part time	60.00
At: Montefiore Hospital	*Medicine PM 67, Advanced Hematology*	*September 18-January 15, part time*	75.00
	Medicine PM 66, Clinical Hematology	September 11-February 5, part time	75.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Hospital	Clinical Hematology	October, 8 weeks, part time	20.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue and University Hospitals	546-A Clinical Hematology	October 1-December 3, 10 sessions	40.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa. At: Bryn Mawr Hospital, Bryn Mawr, Pa.	Clinical and Laboratory Hematology	October and December, 6 weeks, full time	200.00
University of Washington School of Medicine, Seattle 5, Wash.	Hematology	September 10-14, full time	50.00
	HISTOLOGY		
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Histology	Arranged, 5 weeks, full time	300.00
	INDUSTRIAL MEDICINE		
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.	Industrial Medicine for General Physicians	September 17, 1 day	10.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University Hospital	481-A Industrial Medicine	September 24-September 20, 12 months full time	700.00
	484-A Medical Aspects of Compensation	October 22-27, full time	25.00
Institute of Industrial Health, College of Medicine, University of Cincinnati, Eden and Bethesda, Cincinnati 19, Ohio	Fellowship in Industrial Medicine	July 1, 36 months, full time	Stipend
	INTERNAL MEDICINE		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Differential Diagnosis and Treatment of Internal Diseases	January 8-March 25, part time	50.00
University of Southern California, University Park, Los Angeles 7, Calif. At: Los Angeles County Hospital	Internal Medicine 830	September 17, 12 months, full time	1,000.00
The Surgeon General's Office, Dept of the Army, Washington 25, D. C. At: Letterman Army Hospital, San Francisco, Calif.	Recent Advances in Internal Medicine [11,14b]	November 5-9, full time	None
At: Walter Reed Army Hospital, Army Medical Center, Washington 12, D. C.	Present Trends in Internal Medicine [11,14b]	October 8-12, full time	None
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	2 Week Intensive Course in Internal Medicine	October 1, full time	75.00
University of Kansas Medical Center, Kansas City, Kan.[24]	Internal Medicine	December 10-12, full time	20.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Boston City Hospital	Internal Medicine 1	September 4-August 31, full time	600.00[16]
	Internal Medicine 2	September 4-November 30, full time	375.00[16]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Review of Recent Advances in Internal Medicine	September 24-29, 1 week, full time	50.00

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	INTERNAL MEDICINE—Continued		
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Clinical Internal Medicine	October to April, part time	$ 65.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich. At: Receiving Hospital	Medical Conference	Quarterly, 12 weeks, part time	15.00
	Medical Seminar	Quarterly, 12 weeks, part time	15.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Seton Hall Campus, South Orange, N. J.	Internal Medicine	Weekly, 22 sessions, part time	125.00
Columbia University, 630 W. 168th St., New York, N. Y.	Medicine PM 30, Symposium on Internal Medicine	October 15-December 15, full time	350.00
At: Mt. Sinai Hospital	Medicine PM 43, Peripheral Vascular Disorders	October 11-January 17, part time	40.00
At: Montefiore Hospital	Medicine PM 65, Peripheral Vascular *Disorders*	September 27-March 27, part time	125.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Sanitarium and Hospital for Chronic Disease	Internal Medicine	October, 8 weeks, part time	40.00
At: Kings County Hospital	Recent Advances in Internal Medicine	October, 12 sessions, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, *20 E. 106th St., New York 29*, N. Y.	Internal Medicine	Monthly, except July and August, 1 or 2 months, full time	*150.00* 1 month *300.00* 2 months
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	The Treatment of Varicose Veins	Arranged, 4 weeks, part time	*50.00*
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue, Willard Parker and University Hospitals	*5429-A Internal Medicine*	September 24-September 20, 12 *months*, full time	*700.00*
At: Beth Israel Hospital	*733-A Internal Medicine*	October 24-December 14, 8 *weeks*, part time	*80.00*
Cornell University Medical College, 1300 York Ave., New York 21, N. Y. At: Bellevue Hospital, Second (Cornell) Medical Division	Internal Medicine	Continuously, 1st of each month, 3-6 months, full time	*500.00* 6 mos. 250.00 *3 mos.*
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	*Internal Medicine*	October to May, full time	*800.00*
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa. At: University of Cincinnati School of Medicine	*Internal Medicine* with Emphasis on Pathological Physiology	September 17-21, full time	30.00 A.C.P. Mbrs. 60.00 non-members
American College of Physicians, 4200 Pine St., *Philadelphia* 4, Pa. At: University of Pennsylvania Graduate School of Medicine	Physiological Basis for Internal Medicine	December 10-15, full time	30.00 A.C.P. Mbrs. 60.00 non-mbrs.
At: Marquette University School of Medicine, Milwaukee	Internal Medicine	October 8-13, full time	30.00 A.C.P. Mbrs. 60.00 non-members
	MALIGNANT DISEASE		
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, *Calif.*[40] At: Stanford Hospital	Diagnosis and Treatment of Tumors	September 10-14, part time	75.00
Columbia University, 630 W. 168th St., New York, N. Y. At: *Montefiore Hospital*	*Medicine PM 72*, Neoplastic Diseases	September 18-January 29, part time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Brooklyn Cancer Institute	Newer Concepts in Diagnosis and Treatment of Neoplastic Disease	October, 8 weeks, part time	30.00
New York Medical College, *Flower and Fifth* Ave. *Hospitals*, 20 *E.* 106th St., *New York 29, N. Y.*	Newer Concepts in the *Physiology* and Biochemistry of Cancer	*Arranged*, 6 weeks, part time	150.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, *Ore.*	Malignant Diseases	September 24-28, 5 days, full time	30.00
	MEDICINE, GENERAL		
Medical College of Alabama, Birmingham, *Ala.*	American Academy of General Practice Postgraduate Seminar	*August, 2 days*	None
University of Arkansas School of Medicine, Little Rock, Ark.	Medicine, Pediatrics, Obstetrics and Gynecology, Surgery	October-June, every 2 weeks	Not given
California Academy of General Practice, 450 Mission St., San Francisco, Calif. At: *Hotel del* Coronado, Coronado, Calif.	1951 Scientific *Assembly*	November 5-7, full time	5.00 non-academy members
California Medical Association, 1030 N. Center, Stockton, Calif. At: Fresno, Calif.	Medical and Surgical Institute	October, 2 days	5.00[1]
At: Santa Barbara	Medical and Surgical Institute	November, 2 days	.....
At: Riverside	Medical and Surgical Institute	January, 2 days	.....
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	*Diseases of the Kidneys*	November 13-December 18, part time	*25.00*
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5, Calif. At: San Fernando Branch *and East* Los Angeles Branch	General Medicine	October 2-December 18, *part time*	*50.00*
	Practical Medicine *Lecture Series*	Continuously, twice weekly	None
St. John's Hospital, Santa Monica, *Calif.*	Annual Postgraduate Assembly	September 10-12, *full time*	10.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif. At: San Francisco Hospital	General Medicine	September 10-14, part time	75.00
At: Stanford Hospital	General Medicine	September 10-14, *part time*	75.00
University of California Medical Extension, Medical Center, San Francisco 22, Calif. At: U-California Hospital	Evening Lectures in Medicine	September-December, 15 sessions	Not given
University of Southern California, University Park, Los Angeles 7, Calif. At: Los Angeles County Hospital	Electrodiagnosis and Electromyography 2880	Arranged, 1 month, full time	100.00

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Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

MEDICINE, GENERAL—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
San Diego County General Hospital, North End of Front St., San Diego 3, Calif.	Postgraduate Assembly	September, 3 days, part time	None
Atlanta Graduate Medical Assembly, 768 Juniper St., N. E., Atlanta, Ga. At: Municipal Auditorium	Graduate Medical Assembly	January or February, 3 days	$ 15.00
Emory University School of Medicine, 36 Butler St., S. E., Atlanta, Ga. At: Grady Memorial Hospital	PG Course for General Practitioners	October 8-12, 5 days, full time	10.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Intensive Personal Course in Liver and Biliary Tract Diseases	September 17, 1 week, full time	100.00
	Biochemical Background of Clinical Medicine—A Basic Course	October 3, 10 sessions, part time	100.00
	Physical Diagnosis	September 26, 10 sessions, part time	80.00
	Personal Course in Medical Emergencies, Diagnosis and Treatment	September 26, 10 sessions, part time	80.00
Illinois Academy of General Practice, 12710 Maple Ave., Blue Island, Ill. At: Throughout Illinois	Postgraduate Course	35 weeks, 1 day per week	Not given
Illinois State Medical Society, Postgraduate Education Committee, 30 N. Michigan Ave., Chicago 2, Ill. At: Various centers throughout Illinois	Postgraduate Conference	Varied	None
Indiana State Medical Association, 23 E. Ohio St., Indianapolis, Ind. At: University of Indiana to 92 County Societies by direct telephone wire	Postgraduate Medicine	*Continuously*	None
University of Kansas Medical Center, Kansas City, Kan.[24]	Medical Technology	January 14-16, full time	10.00
Boston University School of Medicine, 80 East Concord St., Boston, Mass. At: Massachusetts Memorial Hospital	PG Course in General Medicine	October-April, part time	100.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Boston City Hospital	Medical Diagnosis and Treatment	October 3-May 28, 35 sessions, part time	100.00[16]
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Diagnostic Methods, Clinical and Laboratory Interpretation	October 23-26, full time	30.00
Michigan State Medical Society, 2020 Olds Tower, Lansing, Mich.[32] At: Alpena, Battle Creek, Bay City, Jackson, Lansing, Midland, Mt. Clemens, Muskegon, Traverse City, Escanaba, Houghton, Iron Mountain, Ironwood, Marquette, Menominee, Sault Ste. Marie	Extramural Courses	Fall, 1 day in each center	None
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.	ACTH and Cortisone for General Physicians	October 17, 1 day, full time	10.00
Mississippi Chapter American Academy of General Practice, Canton, Miss. At: Jackson, Miss.	American Academy of General Practice	December, 1 day	None
Kansas City Southwest Clinical Society, 630 Shukert Bldg., Kansas City 6, Mo. At: Municipal Auditorium	Fall Clinical Conference	October 1-4, 4 days	20.00
Missouri State Medical Association, 634 N. Grand Ave., St. Louis, Mo. At: 7 Councilor Districts	District Meeting	Fall, 1 day in each district	Not given
Omaha Mid-West Clinical Society, 1031 Medical Arts Bldg., Omaha 2, Neb. At: Hotel Paxton	Annual PG Clinical Assembly	October 29-November 2 October 27-31, 5 days	Not given
New Hampshire Academy of General Practice, Lyme, N. H. At: Various hospitals throughout N. H.	General Practice Seminars	Varies—once a month	None
Atlantic City Hospital, Atlantic City, N. J.	Recent Advances in General Practice	Continuously, except 2 weeks in August	None
University of Buffalo, School of Medicine, 24 High St., Buffalo, N. Y.	Postgraduate Medicine for General Practitioners	September 17-22, full time	35.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 49, Diagnosis and Treatment of Ambulatory Patients	October 17-December 21, part time	30.00
	Medicine PM 32, Gastrointestinal Disease	October 17-December 12, part time	80.00
	Medicine PM 33, Diseases of the Liver	October 15-29, part time	35.00
	Medicine PM 34, Diseases of the Kidneys	November 5-19, part time	35.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Beth El Hospital	Peripheral Vascular Diseases I	October, 10 sessions, part time	30.00
At: Jewish Hospital	Peripheral Vascular Diseases II	October, 5 weeks, part time	20.00
	Hypertension and Nephritis	October, 8 sessions, part time	20.00
At: Coney Island Hospital	Peripheral Vascular Diseases III	October, 8 sessions, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Peripheral Vascular Disease	Arranged, 2 months, fall, part time	200.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	General Practitioner's Course	Arranged, 4 weeks, full time	100.00
	General Medicine	Arranged, 4 weeks, full time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University Hospital	5431-A *ACTH and Cortisone*	To be announced, 4 days, full time	75.00
	5418-A Peripheral Vascular Diseases	November 26-30, full time	75.00
	5424-A Nephritis and Hypertension	July 16-20, full time	60.00
At: Bellevue and University Hospitals	5424-B Nephritis and Hypertension	October 29-November 2, full time	60.00
	5430-B General Review Course for General Practitioners	July 16-27, *full time*	100.00
	General Practitioners	October 22-November 2, full time	100.00
Duke University School of Medicine, Durham, N. C. At: Duke Hospital	Medical Postgraduate Course	June 18-21, 4 days, full time	25.00
University of North Carolina School of Medicine, Chapel Hill, N. C.	Medical PG Extension Course	October and November, 6 to 8 weeks, part time	20.00 to 30.00
Southwestern Society of General Physicians, Madeira, Ohio At: Hotel Gibson, Cincinnati	Infectious Diseases of *Respiratory* Tract	December 9, 1 day	10.00
At: University of Cincinnati	Acute Contagious Disease	October 18-November 29, 8 sessions	15.00
	Seminars	October to January, 8 sessions, part time	10.00 to 15.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
Medical Society of the State of Pennsylvania, 230 State St., Harrisburg, Pa. At: 10 centers in state	Graduate Education Institute	Fall, 1951	$ 25.00 [7]
University of Pennsylvania *Graduate* School of Medicine, Philadelphia 4, Pa.	The Hand	July 9-20, full time	200.00
Medical College of South Carolina, 16 Lucas St., Charleston, S. C.	Postgraduate Seminar	October 30-November 1, full time	Not given
Nashville Academy of Medicine, Doctors Bldg., Nashville, Tenn. At: Maxwell House, Nashville, Tenn.	Postgraduate Assembly	October, 2½ days	15.00
Postgraduate Medical Assembly of South Texas, 229 Medical Arts Bldg., Houston, Tex. At: Shamrock Hotel	17th Annual Meeting	July 23-25, 3 days	20.00
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg., Houston, Texas At: Shannon West Texas Memorial Hospital	Application of Newer Concepts in the Management of Common Rheumatic Diseases	September 26, 15 sessions	15.00
University of Washington School of Medicine, Seattle 5, Wash.[33]	Diagnosis and Treatment of Infectious Diseases	October 1-3, full time	30.00
Jackson Clinic, 16 South Henry St., Madison, Wis. At: Methodist Hospital	Postgraduate Meeting	September 29, 1 day, part time	None
NEUROLOGY AND PSYCHIATRY			
Los Angeles Psychoanalytic Society, 407 Commercial Center St., Beverly Hills, Calif.[34]	Professional School Courses	July-January, 6 months, part time	232.00
College of Medical Evangelists, 312 N. *Boyle* Ave., Los Angeles 33, Calif.	Neurology	September 20-November 8, part time	40.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif. At: Stanford Hospital	Psychiatry for General Practitioners	September 10-14, part time	75.00
University of California Medical Extension, Medical Center, San Francisco, Calif. At: Langley Porter *Clinic*	Psychiatry and Neurology [2]	August-November, full time	200.00
University of Colorado Medical Center, Dept. of Psychiatry, 4200 East Ninth Ave., Denver, Colo. At: Colorado Psychopathic Hospital	General Psychiatry and Psychomatic Medicine	July 26-28, full time	20.00
The Surgeon General's Office, Dept. of the Army, Washington 25, D. C. At: Fitzsimons Army Hospital, Denver, Colo.	Psychotherapeutic Medicine	August 27-September 8, full time	None [12,14a]
At: Letterman Army Hospital, San Francisco, Calif	Psychotherapeutic Medicine	August 27-September 8, full time	None [12,14a]
At: Walter Reed Army Hospital, Army Medical Center, Washington 12, D. C.	Psychotherapeutic Medicine	September 3-15, full time	None [12,14a]
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Clinical Neurology	September 26, 10 sessions, part time	80.00
	Personal Course in Neuropathology	By appointment	*20.00* per hour
Institute for Psychoanalysis, 664 N. Michigan Ave., Chicago, Ill. At: Illinois Neuropsychiatric Institute	Psychosomatic Demonstrations	October-June, part time	None
At: Cook County Hospital	Psychopathological Demonstrations	October-June, part time	None
University of Kansas Medical Center, Kansas City, Kan.[25] At: Winter General Veterans Hospital, Topeka	Psychomatic Medicine	October 22-24, full time	20.00
Massachusetts Department of Medical Health, 15 Ashburton Place, Boston 8, Mass. At: Metropolitan State Hospital, Waltham, Mass.	PG Seminar in Neurology and Psychiatry—Review Course in Basic Neurology and Psychiatry	October 5-December 7, part time	None
At: Boston Psychopathic Hospital, Boston, Mass.	Clinical Psychology and Dynamic *Psychiatry*	October 17-December 12, part time	*None*
At: Walter E. Fernald State *School*, Waverly, Mass.	Child Psychiatry	October 10-December 10, part time	None
University of Minnesota, Center *for Continuation Study*, Minneapolis 14, Minn.	*Child Psychiatry* for General Physicians	November 26-December 1, full time	35.00
Columbia University, 630 W. 168th St., *New York*, N. Y. At: Columbia-Presbyterian Medical Center	Psychiatry PM 1, Symposium on Neurology and Psychiatry	October 1-December 7, full time	250.00
At: Montefiore Hospital	Neurology PM 60, Neuropsychiatry	November 5-Dec. 1, full time	150.00
	Neurology PM 61, Advanced Neu*rology*	July 2-September 28, October 8-January 4, full time	150.00
At: Mt. Sinai Hospital	Neurology PM 31, Practical Neuroanatomy and Neuropathology	October 8-May 12, part time	140.00
	Neurology PM 32, Advanced Practical Neuroanatomy and Neuropathology	October 4-May 22, part time	100.00
	Neurology PM 34, Laboratory Training in Clinical Electroencephalography	Any 3 months, full time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Neurology	October, 8 sessions, part time	20.00
At: Jewish Hospital	*Child Psychiatry*	October, 10 sessions, part time	*20.00*
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Introduction to Psychanalysis	Fall, 12 sessions	*30.00*
	Seminar on Psychomatic Medicine	*Fall, 6 sessions*	40.00
	Introductory Lectures in Child Psychiatry	Fall, 10 sessions	30.00
	Readings in Psychoanalytic Literature	Fall, 15 sessions	40.00
	Comprehensive Course in Psychoanalysis	Fall, 3 years	300.00 [21]
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue Hospital	643-A Treatment Methods in Psy*chiatry*	January 14-March 8, part time	300.00
	644-A Neuroanatomy and Neurophysiology	January 3-March 22, part time	200.00
	645-A Neurology	September 4, 9 months, full time	700.00
	646-A Psychiatry in the Practice of Medicine and Pediatrics	Arranged, 3 months, full time	300.00
	647-A Psychiatry and Neurology	January 7-March 15, full time	300.00
	648-A Psychology and Psychodynamics	September 17-December 15, part time	*250.00*
	649-A Psychiatry	September 24-June 14, full time	700.00

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	NEUROLOGY AND PSYCHIATRY—Continued		
American Institute for Psychoanalysis, 220 W. 98th St., New York 25, N. Y.	The Meaning of Dreams [35]	September 10, 15 sessions, part time	$ 45.00
	Clinical Conferences [35]	September 14, 10 sessions, part time	30.00
	Continuous Case Seminar [35]	November 23, 10 sessions, part time	30.00
	Horney's Theory of Neurosis	September 13, 15 sessions, part time	30.00
	Readings in Psychoanalysis, The *Works of Horney*	November 23, 25 sessions, part time	50.00
	Psychiatry and Psychoanalysis	September 13, 15 sessions, part time	30.00
	Readings in Psychoanalysis, The Works of Freud	September 10, 20 sessions, part time	40.00
	Moral Alternatives in Our Times	October 2, 15 sessions, part time	17.50
	Psychoanalytic Study of Case Histories	September 27, 15 sessions, part time	30.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa. At: Jefferson Medical College of Philadelphia	Clinical Neurology	October 29-November 3, full time	30.00 A.C.P. Mbrs. 60.00 non-mbrs.
Philadelphia Psychoanalytic Institute, 1701 Walnut St., Philadelphia, Pa.	Professional Training in Psychoanalysis [36]	Continuous, September to June	250.00 per year
	Psychosomatic Medicine	September-February, 12 sessions	Arranged
	Psychoanalytic Criminology	September-December, 6 sessions	Arranged
	Educative Analysis	September-June, continuous	Arranged
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Neurology-psychiatry	October to May, full time	800.00
University of Washington School of Medicine, Seattle 5, Wash.[38]	*Practical Psychiatry*	*July 23-27, full time*	50.00
	Neurology	August 3-4, full time	20.00
	NUCLEAR SCIENCE		
Northwestern University Medical School, 303 E. Chicago Ave., Chicago, Ill.	*Radiation Physics (Radiology D12)*	*Winter and spring, quarters—4 months, part time*	*25.00*
Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.	Radioisotope Techniques	July 9 and August 13, 4 weeks, full time	25.00
	NUTRITION		
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Nutrition	Arranged, 1 month, part time	150.00
	OBSTETRICS AND GYNECOLOGY		
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif. At: Stanford Hospital	Obstetrics and Gynecology	September 10-14, part time	75.00
University of California, Extension Division Bldg., 540 Powell St., San Francisco 2, Calif.	Gynecological and Obstetrical Conference	August 29-31, 3 days	Not given
University of Colorado Medical School, 4200 E. Ninth Ave., Denver, Colo.	1 Week Individual Instruction in Obstetrics and Gynecology	*Arranged throughout the year, 1 week*	35.00
	Lecture Refresher Course, Obstetrics and Gynecology	October, 2 days	25.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in Vaginal Approach to Pelvic Surgery	September 17, Nov. 5, 1 week, full time	100.00
	Intensive 2 Week Course in Gynecology	September 24, October 22, full time	150.00
	Personal Course in Office Gynecology	September 5, November 7 and January 9, 4 sessions, part time	80.00
	Personal Course in Gynecologic Surgery	September 6, November 7 and January 10, 4 sessions, part time	80.00
	Intensive 2 Week Course in Obstetrics	September 10, November 5, full time	150.00
	Personal Course in Surgical Obstetrics	September 5, November 7, and January 9, 4 sessions, part time	100.00
	Personal Course in General and Office Obstetrics	July 11, October 3, 4 sessions, part time	80.00
Michael Reese Hospital Postgraduate Medical School, 29th St. and Ellis Ave., Chicago 16, Ill.	Gynecology and Surgery for the General Practitioner	October 3-March 28, 25 sessions, part time	150.00
Chicago Medical Society, 30 N. *Michigan Ave., Chicago 2, Ill.* At: Thorne Hall	Obstetrics and Gynecology	October 22-26, 5 days	*60.00*
Stritch School of Medicine of Loyola University, 706 S. Wolcott Ave., Chicago, Ill. At: Lewis Memorial Maternity Hospital	Third Annual Televised Postgraduate Conference in Obstetrics and Gynecology	September 24-28, 1951	*Not given*
State University of Iowa College of Medicine, Iowa City, Iowa	Postgraduate Conference in Obstetrics and Gynecology	October and December, 1 day	5.00
University of Kansas Medical Center, Kansas City, Kan.[24]	Obstetrics and Gynecology	November 12-14, full time	20.00
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore 1, Md. At: University Hospital	Gynecology, Oncology and Female Urology	September-May, 10 weeks, full time	125.00
	Gynecology and Obstetrics	September-May, 12 weeks, full time	150.00
Harvard Medical School, Courses for *Graduates*, 25 *Shat*tuck St., Boston 15, Mass. At: Boston Lying-in Hospital	Clinical Obstetrics	September and October, *1 month*, full time	*150.00*[16] a month
At: Massachusetts General Hospital	Gynecology 1	*July 1-June 30, throughout the year, by arrangement, full time*[18]	800.00[16]
	Gynecology 3	October 8-20, full time	150.00[16]
	Gynecology 2	*July, August* and September 1951, 1 month, full time	150.00[16] per month
At: Free Hospital for Women	Obstetrics for General Physicians	January 3-5, full time	20.00
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.			
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Seton Hall Campus, South Orange, N. J.	Gynecology	Arranged, 15 sessions, part time	*100.00*
Columbia University, 630 W. 168th St., New York, N. Y.	Gynecology PM 30, Recent Advances in Gynecology	December 17-22, full time	*65.00*
At: Mt. Sinai Hospital	*Obstetrics* PM 80, Internship Training	1st *of each month*, 3 months, *full time*	350.00
At: Margaret Hague Maternity Hospital	*Obstetrics* PM 81, Observation Course	1st of each month, 1 month, full time	100.00

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	OBSTETRICS AND GYNECOLOGY—Continued		
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23]			
At: Greenpoint Hospital	Sterility	October, 12 sessions, part time	$ 40.00
At: State University College of Medicine at N. Y. C.	Manikin	October, 8 weeks, part time	30.00
At: St. John's Episcopal Hospital	Office Gnyecology	October, 8 sessions, part time	20.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Obstetrics and Gynecology Including Manikin Obstetrics and Operative Gynecology (Cadaver)	October, 2 months, full time	250.00
	Manikin Obstetrics	Arranged, 4 weeks, part time	150.00
	Clinical Course in Office and General Obstetrics	Arranged, 4 weeks, part time	100.00
	Clinical Gynecology	Arranged, 6 weeks, part time	75.00
	Clinical and Operative (Cadaver) Gynecology	Arranged, 6 weeks, part time	175.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: Bellevue and University Hospitals	560-A Gynecological Malignancy [30]	October 15-26, full time	200.00
At: University Hospital	561-A Seminar in Gynecology	October 8-December 1, full time	300.00
	562-A Gynecology Diagnosis and Office Treatment	October 29-November 19, part time	50.00
	563-A Gynecology, Diagnosis and Office Treatment	September 17-October 22, part time	75.00
	564-A Infertility	December 10-12, full time	40.00
	566-A Cystoscopy and Endoscopy	September 17-October 22, part time	100.00
	567-A Gynecological Endocrinology	October 9-December 8, part time	150.00
	568-A Vaginal Cytology (For Specialists)	October 9-December 6, part time	100.00
	569-A Surgical Anatomy as Applied to Gynecology (Cadaver) (For Specialists)	October 16-November 13, part time	200.00
At: Beth Israel Hospital	734-A Gynecology (For Specialists)	September 4-December 21, part time	250.00
Southern Pediatric Seminar, Saluda, N. C.	Obstetrical and Gynecological Session	July 30-August 4, 1 week	25.00
Southwestern Society of General Physicians, Madeira, Ohio			
At: Hotel Gibson, Cincinnati	Problems in Obstetrics	September 20, 1 day	10.00
	Office Gynecology	January 9, 1 day	10.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Gynecology-Obstetrics	October to May, full time	800.00
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg., Houston, Texas			
At: St. Joseph's Infirmary	Obstetrics (2d part)	September 12, 15 sessions	25.00 (Both parts)
University of Washington School of Medicine, Seattle 5, Wash.[33]	Obstetrics	August 6-10, full time	50.00
	OPHTHALMOLOGY AND OTOLARYNGOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Ophthalmology	January 29-March 18, 8 weeks, part time	30.00
	Otolaryngology	October 30-December 18, 8 weeks, part time	30.00
University of California Medical Center, San Francisco, Calif.	Ophthalmology	September 10-14, 1 week, full time	Not given
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	2 Week Clinical Course in Otolaryngology	1st of every week, full time	50.00
	2 Week Clinical Course in Ophthalmology	1st of every week, full time	50.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12, Ill.	Postgraduate Course in Ophthalmology	July 1-January 1, 1952, 6 months, full time	500.00
Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11, Ill.	Endaural Otologic Surgery and Audiology	October, 5 weeks, full time	500.00
	Postgraduate Basic Course in Ophthalmology	October-June, 8 months, full time	800.00
State University of Iowa College of Medicine, Iowa City, Iowa	Postgraduate Conference in EENT	November, 1½ weeks, full time	Not given
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Slit Lamp and Gonioscopy	November 26-December 1 and December 3-8	100.00
	Basic Science in Ophthalmology	July 9-June 30	500.00
American Academy of Ophthalmology and Otolaryngology, 100 First Ave., Bldg., Rochester, Minn.			
At: Palmer House, Chicago, Ill.	Instruction Courses	October 14-19, 1 week	1.50 per hour
Home Study Courses	Ophthalmology Otolaryngology	September-June, 10 months, part time	10.00 each course
Ophthalmological Study Council, 243 Charles St., Boston, Mass.			
At: Harvard Medical School	PG Courses in Ophthalmology	September 29-March 1	750.00
At: Portland, Me.	Lancaster Courses in Ophthalmology	June-September, 11 weeks, full time	300.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.	Anatomy of the Head and Neck	December 3-February 2, full time	300.00 [16]
At: Harvard and Massachusetts Eye and Ear Infirmary	Basic Sciences in Ophthalmology, Clinical Opthalmology and Ocular Pathology, Fundamentals in Refraction and Ocular Motility	September 24-March 1, full time	700.00 [16]
	Histopathology of the Ear, Nose and Throat	November 5-December 1, full time	200.00 [16]
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.[37]	Ophthalmology	October 15-November 9, part time	75.00
	Neuroophthalmology	November 26-30, full time	75.00
	Ophthalmoscopy	November 26-December 21, part time	50.00
	Ophthalmology	January 7-February 1, part time	75.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich.			
At: Kresge Eye Institute, Detroit, Mich.	Basic Ophthalmology	September, 9 months, full time	900.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J.			
At: Newark Eye and Ear Infirmary, Newark	Ocular Therapy	Arranged, 5 sessions, part time	50.00
At: Seton Hall Campus, South Orange	Ocular Pathology	Arranged, 10 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York, N. Y.			
At: Columbia-Presbyterian Medical Center	Otolaryngology PM 1, Bronchoscopy	October 8-26, part time	250.00
At: Montefiore Hospital	Ophthalmology PM 62,Glaucoma	October 15-December 10, part time	30.00

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Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
At: Mt. Sinai Hospital	Ophthalmology PM 30, Slit Lamp Microscopy of the Living Eye	October 24-December 12, part time	$ 40.00
	Otorhinology PM 30, Rhinoplasty and Otoplasty	Any 3 months, full time	250.00
	Ophthalmology PM 31, Ophthalmic Surgery	September 26-December 19, part time	90.00
	Ophthalmology PM 32, Refraction and Extraocular Muscles	October 5-December 28, part time	80.00
	Ophthalmology PM 33, Glaucoma and the Pharmacology of the Autonomic Nervous System	September 27-November 15, part time	20.00
	Ophthalmology PM 34, Histopathology of the Eye	October 8-December 20, part time	55.00
	Ophthalmology PM 35, Bacteriology of the Eye and External Diseases	October 8-December 24, part time	45.00
	Ophthalmology PM 36, Embryology of the Eye	October 24-December 12, part time	40.00
	Ophthalmology PM 37, Physiological Optics	October 8-December 17, part time	45.00
	Ophthalmology PM 38, Ophthalmoscopy Advanced	October 24-December 12, part time	40.00
	Ophthalmology PM 40, Techniques of Systematic Examination of the Eye and Functional Testing	September 19-December 19, part time	25.00
	Otolaryngology PM 30, Practical Pathology of the Ear	October 9-November 16, part time	50.00
	Ophthalmology PM 39B, Ophthalmoscopy in General Practice	September 27-December 27, part time	25.00
	Ophthalmology PM 42, Medical Ophthalmology	September 11-December 18, part time	25.00
At: Columbia-Presbyterian Medical Center	Otolaryngology PM 10, Advanced Otolaryngology	Any 3 consecutive months, full time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Sanitarium and Hospital for Chronic Diseases	Ophthalmoscopy	October, 8 sessions, part time	20.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Operative Ophthalmology (Cadaver)	Arranged, 4 weeks, part time	100.00
	Otolaryngology and Ophthalmology	October 1, 9 months, full time	1,000.00
	Otolaryngology and Ophthalmology Including Cadaver EENT and Refraction	October and January, 3 months, full time	600.00
	Refraction	Arranged, 4 weeks, part time	100.00
	Advanced Otology[30]	Arranged, 2 weeks, part time	250.00
	Ophthalmology, Including Cadaver Ophthalmology and Refraction	Arranged, 3 months, part time	300.00
	Motor Anomalies	Arranged, 4 weeks, part time	50.00
	Operative Otology (Cadaver)	Arranged, 4 weeks, part time	100.00
	Operative Nose and Throat (Cadaver)	Arranged, 4 weeks, part time	150.00
	Seminar in Ophthalmology and Otolaryngology	Arranged, 5 days, full time	50.00
	Clinical Ophthalmology	Arranged, 6 weeks or 3 months, part time	75.00 6 wks. 100.00 3 mos.
	Clinical Otolaryngology	Arranged, 6 weeks or 3 months, part time	100.00 6 wks. 150.00 3 mos.
	Clinical Ophthalmology and Otolaryngology	Arranged, 6 weeks or 3 months, full time	150.00 6 wks. 250.00 3 mos.
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue Hospital	576-A Ophthalmology	October 1-June 14, full time	700.00
	5712-A Practical Office Procedures	July 16-20, part time	50.00
	5713-A Ocular Therapeutics	July 23-27, part time	50.00
	5713-B Ocular Therapeutics	January 14-18, part time	50.00
	5714-A Histopathology	July 23-27, part time	100.00
	5714-B Histopathology	January 14-18, part time	100.00
	591-A Intensive Course in Basic Sciences	September 10-21, part time	75.00
	592-A Histopathology of the Ear, Nose and Throat	September 10-21, part time	75.00
	593-A Basic Sciences of Otorhinolaryngology	September 24-June 13, full time	700.00
	596-A Anatomy of Head, Neck and Thorax for Otolaryngologists	September 24-November 2, part time	150.00
At: University Hospital	575-A Differential Diagnosis with the Slit Lamp (for Specialists)	November 5-9, part time	75.00
At: Bellevue and University Hospitals	573-A Ophthalmic Neurology (for Specialists)	November 12-16, part time	50.00
	574-A Surgery of the Eye (for Specialists)	October 29-November 3, full time	100.00
	577-A External Diseases of the Eye (for Specialists)	November 5-9, part time	75.00
	578-A Ocular Expressions of Systemic Disease[30]	November 12-16, part time	50.00
	579-A Neuro-Ophthalmology	July 9-13, part time	50.00
	5710-A Perimetry	July 9-13, part time	50.00
	5711-A Ophthalmoscopy	July 16-20, part time	50.00
	5713-B Ocular Therapeutics	January 14-18, part time	50.00
	5714-B Histopathology[30]	January 14-18, part time	100.00
	594-A Endaural Surgery[30]	November 5-16, full time	200.00
	597-A Neuro-Anatomy, Neuro-Physiology and Neuro-Otology[30]	November 12-December 21, part time	75.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Otolaryngology	October to May, full time	800.00
	Ophthalmology	October to May, full time	800.00
University of Texas [illegible] Medicine, 207 A Hermann Profess[illegible] exas At: M. D. Anders[illegible] Research	Common Diseases of the Eyes, Ears, Nose and Throat	September 27, 10 sessions, part time	10.00
At: Shannon West Texas Memorial Hospital	Common Diseases of the Eyes, Ears, Nose and Throat	September 27, 10 sessions, part time	10.00
Virginia Society of Ophthalmology and Otolaryngology, Charlottesville, Va. At: Richmond, Va.	Postgraduate Course in Ophthalmology and Otolaryngology	November 27-30, full time	25.00 to 35.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ORTHOPEDIC SURGERY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Diseases of Injuries of Bones and Joints	July 9-30, full time	$100.00
Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11, Ill.	Basic Science Course in Orthopaedics	January-June, full time	600.00
Tulane University of Louisiana School of Medicine, 1430 Tulane Ave., New Orleans, La.	Basic Science as Applied to Orthopedics	September 1, 5 months	300.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Children's Hospital	Orthopedic Surgery 1	July 1-June 30, throughout the year, by arrangement, full time[17]	800.00[16] for 12 months
At: Massachusetts General Hospital	Orthopedic Surgery 2	July 1-June 30, throughout the year, by arrangement, full time[18]	800.00[16] for 12 months
At: Children's and Massachusetts General Hospitals	Orthopedic Surgery 3	July 1-June 30, throughout the year, by arrangement, full time[17]	800.00[16] for 12 months
Columbia University, 630 W. 168th St., New York, N. Y. At: Hospital for Joint Diseases	Orthopedic Surgery PM 80, Survey of the Essentials of Orthopedics	September 27-December 13, part time	100.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Orthopedics in General Practice	November, 1 week, full time	60.00
	Orthopedics of the Foot	Arranged, 8 sessions	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York, N. Y.	Orthopedic Surgery for General Surgeons	Arranged, 3 months, part time	75.00
	Operative Orthopedics (Cadaver)	Arranged, 5 periods, part time	100.00
	Advanced Orthopedics of the Foot	Arranged, 8 periods, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue and University Hospitals	581-A Basic Sciences in Relation to Orthopedic Surgery	January 2-June 28, full time	450.00
	582-A Orthopedics in General Practice	October 15-26, full time	100.00
	583-A Anatomy for Orthopedic Surgeons	January 7-12, full time	75.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Orthopedics	October to May, full time	800.00
	PATHOLOGY		
The Surgeon General's Office, Dept. of the Army, Washington 25, D. C. At: Armed Forces Institute of Pathology, 7th St. and Independence Ave., S. W., Washington 25, D. C.	Ionizing Radiation Injury	September 3-7, full time	None[13,14c]
	Thermal and Chemical Injuries of Tissue	September 24-28, full time	None[13,14c]
	Pathology of Diseases Peculiar to Aviation and Submarine Medicine	October 22-26, full time	None[13,14c]
	Medical Legal Aspects of Military Medicine	December 3-7, full time	None[13,14c]
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	12 Month Department Course in Gross and Surgical Pathology	By appointment, full time	900.00
	12 Month Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	6 Month Clinical Course in Gross and Surgical Pathology	By appointment, full time	500.00
	Personal Course in Surgical Pathology on Selective Subjects	By appointment, 1 or 2 weeks, full time	15.00 per hour
	Personal Course in Surgical Pathology	By appointment, every month, 2 or 4 weeks, full time	150.00 2 wks. 250.00 4 wks.
	Personal Course in Pathology and Laboratory Medicine	September 12, 10 sessions, part time	100.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Pathologic Diagnosis	September, 10 weeks, part time	50.00
University of Maryland School of Medicine, Lombard and Greene Sts., Baltimore 1, Md.	Neuropathology	Arranged, 6 months, full time	200.00[3]
	Pathology	Arranged, 6 months, full time	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Free Hospital for Women	Pathology of Obstetrics and Gynecology	January 3-May 15, 20 sessions, part time	150.00[16]
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich.	Histopathology of Ear, Nose and Throat	December, 12 weeks, part time	25.00
	Neuropathology	December, 12 weeks, part time	50.00
	Pathology of Parasitic Diseases	September, 12 weeks, part time	50.00
	Gynecologic Pathology	December, 12 weeks, part time	50.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Seton Hall Campus, South Orange, N. J.	Surgical Pathology	Arranged, 30 sessions, part time	200.00
	Gynecological Pathology	Arranged, 16 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Pathology PM 30, General and Special Pathology	September 29-January 5, part time	60.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Pathology	Arranged, 16 weeks, part time	200.00
	Clinical Pathology	Arranged, 26 hours	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Surgical Pathology	Arranged, 3 months, part time	300.00
	Urological Pathology	Arranged, 3 months, part time	50.00
	Blood Transfusions	Arranged, 2 weeks, part time	100.00
	Pathology	Arranged, 3 months, part time	300.00
	Pathology	Arranged, 12 months, part time	1,000.00
	Pathology for Surgeons	Arranged, 1 month, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University and Bellevue Hospitals	598-A Pathology of the Head and Neck	November 19-December 14, part time	100.00
At: University Hospital	441-A Gynecological Pathology (For Specialists)	September 19-January 2, part time	100.00
	442-A Pathology	September 18-December 27, part time	200.00
At: Lenox Hill Hospital	736-A Pathology for Surgeons	October 29-December 10, part time	50.00
	737-A Histopathology for Gynecologists	October 30-December 11, part time	50.00
University of Oklahoma School of Medicine and University Hospitals, Oklahoma City, Okla.	Postgraduate Course in Surgical Pathology	October-December, 10 sessions, part time	50.00
University of Washington School of Medicine, Seattle 5, Wash.[33]	Review for Specialty Boards	Arranged, part time	None
	Oncology	Arranged, 12 months, full time	None[38]

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PEDIATRICS		
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif.			
At: Stanford Hospital	Pediatrics	September 10-14, part time	$ 75.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	2 Week Personal Course in Cerebral Palsy	July 30, 2 weeks, full time	150.00
	12 Month Department Course in Pediatrics	*July 1, full time*	750.00
	Informal Refresher Course in Clinical Pediatrics	Every week, 2 or 4 weeks, full time	60.00 2 wks. 100.00 4 wks.
	Personal Course in Pediatrics	September 26, 10 sessions, part time	80.00
Children's Memorial Hospital, 707 W. Fullerton Ave., Chicago 14, Ill.	Postgraduate Course in Pediatrics	October 1-27	100.00
State University of Iowa College of Medicine, Iowa City, Iowa	*Pediatrics Postgraduate Conference*	October, 2 days, full time	5.00 [8]
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: Massachusetts General Hospital	Pediatrics 1	October 1-May 29, full time	800.00 [16]
At: Childrens Hospital	Pediatrics 2	September 4-December 21, full time	500.00 [16]
Tufts College Medical School, *Postgraduate Division*, 30 Bennet St., Boston 11, Mass.	Pediatrics	*October 22-November 3, full time*	75.00
Essex County Medical *Society*, 38-40 Clinton St., Newark, N. J.			
At: Newark City *Hospital*	Pediatrics	Arranged, 20 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York, N. Y.			
At: Mt. Sinai Hospital	Pediatrics *PM 30, Clinical Pediatrics*	October 11-December 20, part time	80.00
	Pediatrics *PM 31, Allergy in Children*	October 12-December 14, part time	40.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23]			
At: Beth El Hospital	Clinical Pediatrics	October, 6½ weeks, part time	30.00
At: Kings County Hospital	Applied Immunologic Procedures in Children	October, 8 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave Hospitals, 20 E. 106th St., New York 29, N. Y.	Clinical Pediatrics	Continuously, 1, 3, 6, 9 or 12 months, full time	150.00 [10]
	Pediatric Allergy Course I	October-March, part time	300.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Pediatrics	Arranged, 4 weeks, part time	75.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: University Hospital	611-A Clinical Pediatrics	October 15-December 21, part time	125.00
	612-A Clinical Pediatrics	October 8-November 2, full time	150.00
	614-A Review of Clinical Pediatrics	September 10-15, full time	60.00
	618-A Pediatric Cardiology	September 17-21, full time	75.00
At: Willard Parker Hospital	617-A Communicable Diseases	January 14-18, full time	60.00
At: Bellevue and University Hospitals	6110-A Pediatrics	September 24-September 20, 12 months, full time	700.00
Southern Pediatric Seminar, Saluda, N. C.	Southern Pediatric Seminar (Pediatrics and Obstetrics)	Pediatrics—July 16-28 Obstetrics—July 30-August 4	40.00 25.00 50.00 for both
University of Oklahoma School of Medicine and University Hospitals, Oklahoma City, Okla.[30]	Postgraduate Course in General Pediatrics	September 24-26, full time	15.00
University of *Pennsylvania* Graduate School of Medicine, Philadelphia 4, Pa.	Pediatrics	October to May, full time	800.00
	PHARMACOLOGY		
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich.	Recent Developments in Pharmacology and Therapeutics	September, 12 weeks, *part time*	15.00
New York Medical College, *Flower* and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Applied *Pharmacology* and Therapeutics	*Arranged, 20 hours, part time*	100.00
	PHYSICAL MEDICINE		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Physical Medicine	*October 3-November 21, part time*	*30.00*
The Surgeon General's Office, Dept. of the Army, Washington 25, D. C.			
At: Letterman Army *Hospital, San Francisco, Calif.*	*Physical Medicine and* Rehabilitation[11,14b]	November 12-15, full time	*None*
At: Walter Reed Army *Hospital*, Army Medical Center, Washington 12, D. C.	Physical Medicine in Conjunction with General Surgery[11,14b]	December 8, full time	None
American Congress of Physical Medicine, 30 N. Michigan Ave., Chicago 2, Ill.			
At: Shirley-Savoy Hotel, Denver, Colo.	Physical Medicine and Rehabilitation	September 4-7, full time	15.00
University of *Minnesota, Center for Continuation Study*, Minneapolis 14, Minn.	Physical Medicine and Rehabilitation for General Physicians	September 27-29, 3 days, full time	20.00
Columbia University, *630 W. 168th St., New York, N. Y.*			
At: Mt. Sinai Hospital	Physical Medicine PM 30, Physical Therapy in General Practice	*October 2-January 31, part time*	85.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23]			
At: Jewish *Sanitarium and Hospital* for Chronic Diseases	Clinical Rehabilitation	October, 10 weeks, part time	30.00
At: Kings County Hospital	Physical Medicine and Rehabilitation	October, 6 weeks, part time	20.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York, N. Y.	Physical Medicine	Arranged, 4 weeks, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: Bellevue, University Hosps. and Institute of Physical Medicine and Rehabilitation	621-A Physical Medicine and Rehabilitation	September 24-June 14, 9 months, full time	700.00
	621-B Physical Medicine and Rehabilitation	January 14-October 11, 9 months, full time	700.00
	622-A Physical Medicine and Rehabilitation	Arranged, 12 or 24 weeks, full time	200.00 12 wks. 400.00 24 wks.
	623-A Physical Medicine and Rehabilitation	September 10-October 20, full time	100.00
	623-B Physical Medicine and Rehabilitation	January 14-February 23, full time	100.00
University of *Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.*	Physical Medicine	October to May, full time	800.00

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PHYSIOLOGY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver 7, Colorado	Pathological Physiology	September-December, *part time*	$ 28.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Clinical Physiology—A Basic Course	October 4, 10 sessions, *part time*	100.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Physiology PM 30, Physiology of the Digestive Tract	October 17-December 21, part time	40.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Physiology of the Cardio-Vascular System and Blood	Arranged, 1 month, part time	75.00
	Physiology and Respiration	Arranged, 1 month, part time	75.00
	Physiology of the Nervous System	Arranged, 2 weeks, part time	50.00
	Physiology of the Special Senses	Arranged, 1 month, part time	75.00
	Physiology of the Endocrine System	Arranged, 1 month, part time	75.00
	Physiology and Chemistry of the Gastrointestinal Tract Digestion	Arranged, 1 month, part time	150.00
	Applied Physiology	Arranged, 36 hours, part time	300.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: University Hospital	5420-A Normal and Pathological Physiology Functional and Chemical Aspects	September 10-21, full time	115.00
	PHYSIOLOGICAL CHEMISTRY		
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich.	Intermediary Metabolism	December, 12 weeks, part time	15.00
	Biological Catalysts	September, 12 weeks, part time	15.00
	Survey of Medical Chemistry	September, 12 weeks, part time	15.00
	Special Topics	September, 12 weeks, part time	15.00
	Seminar in Physiological Chemistry	Quarterly, 12 weeks, part time	15.00
	PLASTIC SURGERY		
Illinois Masonic Hospital, 836 Wellington Ave., Chicago 14, Ill.	Introduction to Reconstructive Surgery of Nasal Septum and External Pyramid	October 6-13, *full time*	150.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Prosthetics	October to May, full time	800.00
	POLIOMYELITIS		
University of Colorado School of Medicine, 4200 E. 9th Ave., Denver, Colo.[40]	Recent Advances in Infectious Diseases, Including Poliomyelitis	December, 2½ *days, full time*	20.00
Orthopaedic Hospital, Los Angeles, Calif.[40]	Poliomyelitis: Team Approach to Total Care	October 22-25, full time	15.00
Georgia Warm Springs Foundation, Warm Springs, Ga.[40]	*Care of Acute and Convalescent Poliomyelitis*	1st Monday in July, October and January, 1 week	*None*
Children's Medical Center, 300 Longwood Ave., Boston, Mass.[40]	Poliomyelitis	August 6-10, 1 week, full time	50.00
D. T. Watson School of Physiatrics, Leetsdale, Pa.[40]	Essentials in Care of Acute Poliomyelitis	Each summer, 5 days	10.00
	PROCTOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Proctology	January 3-March 6, part time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Lecture and Cadaver Course in Proctology	October 19, November 16 and January 9, 3 sessions, part time	75.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston 11, Mass.	Proctology I	October 22-26, full time	40.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Newark City Hospital	Office Proctology	Arranged, 12 sessions, part time	100.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Hospital	Proctology	October, 6 weeks, *part time*	40.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Proctology, Gastroent[illegible] Operative [illegible]	October and January, 6 weeks, part time	200.00
	Clinical Proc[illegible]ology	*October and January, 6 weeks, part time*	100.00
	Clinical Proctology	Arranged, 6 weeks, *part time*	75.00
	Clinical and Cadaver *Proctology*	Arranged, 6 weeks, part time	175.00
	Clinical Gastroenterology	Arranged, 6 weeks, part time	75.00
	PUBLIC HEALTH		
U. S. Public Health Service, Communicable Disease Center, Atlanta, Ga.	Laboratory Diagnosis of *Bacterial* Diseases, General Bacteriology Part 1	August 27-September 7, full time	None
	Laboratory Diagnosis of Parasitic Diseases, Part 1 Intestinal Parasites	September 3-21, full time	None
	Laboratory Diagnosis of Virus Diseases	September 3-28, full *time*	None
	General Bacteriology Part 2	September 10-21, full *time*	None
	Parasitic Diseases, Part 2 Blood Parasites	September 24-October 12, full time	None
	Laboratory Diagnosis of *Enteric* Disease, Part 1 Introductory Enteric Bacteriology	September 24-28, full time	None

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PUBLIC HEALTH—Continued		
U. S. Public Health Service, Communicable Disease Center, Atlanta, Ga.	Part 2 Advanced Enteric Bacteriology	October 1-12, full time	None
	Laboratory Diagnosis of Rabies	October 1-5, full time	None
	Laboratory Diagnosis of Virus Diseases	October 8-12, full time	None
	Laboratory Diagnosis of Parasitic Diseases	October 22-26, full time	None
	Laboratory Diagnosis of Bacterial Diseases	October 22-26, full time	None
	Laboratory Diagnosis of Mycotic Diseases	October 29-November 2, full time	None
	Laboratory Diagnosis of Tuberculosis[41]	October 29-November 2, full time	None
	Clinical Chemistry Part 1, Introductory and General Procedures	October 29-November 2, full time	None
	Laboratory Diagnosis of Mycotic Diseases	November 5-16, full time	None
	Laboratory Diagnosis of Tuberculosis[41]	November 5-16, November 19-30, full time	None
	Clinical Chemistry Part 2, Quantitative Analysis	November 5-16, full time	None
	Laboratory Diagnosis of Mycotic Diseases Part 2, Systemic Fungi	November 19-30, full time	None
	Laboratory Diagnosis of Malaria	Arranged, 2 weeks, full time	None
	Identification of Medically Important Arthropods	Arranged, 2 weeks, full time	None
	Typing of Corynebacterium Diphtheriae	Arranged, 1 week, full time	None
	Phage Typing of Salmonella Typhosa	Arranged, 1 week, full time	None
	Serologic Diagnosis of Rickettsial Diseases	Arranged, 1 week, full time	None
	Virus Isolation and Identification Techniques	Arranged, 2-4 weeks, full time	None
	Laboratory Diagnosis of Influenza	Arranged, 1 week, full time	None
	Advanced Quantitative Analyses in Clinical Chemistry	Arranged, 1 week, full time	None
	Toxicology	Arranged, 1 week, full time	None
Tulane University of Louisiana, 1430 Tulane Ave., New Orleans, La.	Master of Public Health (Tropical Medicine)	September 13-May 27, full time	$500.00
Johns Hopkins University School of Hygiene and Public Health, 615 N. Wolfe St., Baltimore 5, Md.	Public Health[22]	September 27-May 23, full time	800.00
Harvard School of Public Health, 55 Shattuck St., Boston 16, Mass.	Public Health	September 24, 8 months	800.00
University of Minnesota, School of Public Health, Minneapolis 14, Minn.	Public Health	October-June	90.00[5]
Albany Medical College, 47 New Scotland Ave., Albany, N. Y. At: Albany, Buffalo, Rochester, Poughkeepsie and Syracuse	Extension Course in Public Health	Continuously, 6 days, part time	25.00
Columbia University School of Public Health, 600 W. 168th St., New York 32, N. Y.	Public Health (Master of PH)	September 25, 8 months, full time	660.00
	Hospital Administration (Master of Science)	September 25, 8 months, full time	660.00
University of Pittsburgh School of Public Health, Pittsburgh, Pa. At: Municipal Hospital	Public Health Practice, Occupational Health, Hospital Administration	September-June, 9 months	600.00 per year
	PULMONARY DISEASE		
The Surgeon General's Office, Dept. of the Army, Washington 25, D. C. At: Fitzsimons Army Hospital, Denver, Colo.	Pulmonary Diseases[11,14b]	September 24-28, full time	None
American College of Chest Physicians, 500 N. Dearborn St., Chicago, Ill. At: St. Clair Hotel, Chicago	Postgraduate Course in Diseases of the Chest	September 24-29, full time	50.00
At: Hotel New Yorker, New York	Postgraduate Course in Diseases of the Chest	November 12-17, full time	50.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Personal Course in the Technique of Physical Examination and Diagnosis of the Chest	September 19, 8 sessions, part time	50.00
Michael Reese Hospital Postgraduate School, 29th St. and Ellis Ave., Chicago 16, Ill.	Recent Advances in Diseases of the Chest	Fall, 1951, 10 sessions, part time	50.00
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.	Diseases of the Chest for General Physicians	October 18-20, 3 days, full time	20.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Diseases of the Chest	October 16-December 11, part time	60.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Diseases of the Chest	October and November, part time	100.00
At: Municipal Sanitarium, Otisville, N. Y.	Pulmonary Tuberculosis	Arranged, 3 weeks, full time	175.00
New York University Postgraduate Medical School, 477 First Ave., New York 16, N. Y.	5432-A Pulmonary Diseases in Relation to Industry	To be announced, full time, 5 days	60.00
Southwestern Society of General Physicians, Madeira, Ohio At: Hotel Gibson, Cincinnati, Ohio	Infectious Disease of Respiratory Tract	December 9, 1 day, full time	10.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, Ore.	Diseases of the Chest	October 29-31, full time	30.00
	RADIOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Roentgenology	October 2-June 3, part time	100.00
University of Southern California, University Park, Los Angeles 7, Calif. At: Los Angeles County Hospital	Cardiac Roentgenology #841	Arranged, 6 months, full time	500.00
The Surgeon General's Office, Dept. of the Army, Washington 25, D. C. At: Walter Reed Army Hospital, Army Medical Center, Washington 12, D. C.	Postgraduate Radiology[11,14b]	September 10-11, full time	None

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Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

RADIOLOGY—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	12 Month Course in Diagnostic Roentgenology and X-ray therapy	By appointment, full time	$750.00
	8 Month Course in Diagnostic Roentgenology	By appointment, full time	500.00
	Routine Clinical Course in Diagnostic Roentgenology and Fluoroscopy	3d Monday of every month, 2 weeks, full time	70.00
	2 Week Clinical and Didactic Course in Diagnostic Roentgenology and Fluoroscopy	1st Monday of each month, 2 weeks, full time	125.00
	High and Low Voltage X-ray Therapy	1st of every week, 1 or more weeks, full time	60.00[43] 2 wks.
	Clinical Interpretation of X-ray Findings	September 20, 10 sessions, part time	80.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Peter Bent Brigham Hospital	General Radiology 1	July 1-June 30, throughout the year, 1 month, full time	150.00[16] per month
At: Massachusetts General Hospital	General Radiology 2	July 1-June 30, throughout the year, 1 month, full time	150.00[16] per month
At: Boston City Hospital	General Radiology 3	July 1-June 30, throughout the year, 1 month, full time	150.00[16] per month
At: Childrens Hospital	Pediatric Radiology	July 1-June 30, throughout the year, 1 month, full time	150.00[16] per month
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich. At: Receiving Hospital	Medical X-Ray Conference	Quarterly, 12 weeks, part time	15.00
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.	Roentgenology of the Chest for Radiologists	October 29-November 3, full time	35.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J. At: Seton Hall Univ.	Diagnostic Roentgenology	Arranged, 14 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Radiology PM 30, Introduction to Nuclear Physics for Physicians	October 16-February 19, part time	60.00
At: Hospital for Joint Diseases	Radiology PM 80, Roentgenographic Interpretation of the Diseases of Bones and Joints	October 3-December 19, part time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: Jewish Sanitarium and Hospital for Chronic Diseases	Clinical Radiology	October, 10 sessions, part time	20.00
At: Jewish Hospital	X-ray Diagnosis	October, 10 sessions, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Diagnostic Roentgenology	Arranged, 6 weeks, part time	150.00
	Radium and Roentgen Therapy	Arranged, 6 weeks, part time	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Roentgenological Interpretation and Technique	October and January, 3 months, full time	300.00
	Advanced Diagnostic Roentgenology [illegible]	October and January, 3 months, full time	300.00
	[illegible] and Radi[illegible]	October and January, 12 months, full time	1,000.00
	Practical Course in Superficial and Deep X-ray Therapy	Arranged, 4 weeks, part time	100.00
	Advanced Course in Radiotherapy	Arranged, 4 weeks, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue and University Hospitals	651-A Diagnostic Radiology for General Practitioners	October 5-May 23, part time	100.00
	651-B Diagnostic Radiology for General Practitioners	October 3-May 7, part time	100.00
	652-A Diagnostic Radiology	September 17-December 7, part time	100.00
	653-A Radiology, Basic Sciences	September 24-June 14, full time	700.00
	655-A Radiophysics	October 23-February 16, part time	75.00
American Roentgen Ray Society, Germantown Hospital, Philadelphia 44, Pa. At: Shoreham Hotel, Washington, D. C.	Instructional Courses	September, 4 days	5.00[6]
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Radiology	October to May, full time	800.00

SURGERY

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Traumatic Surgery	October 2-December 13, part time	50.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif.[19] At: Stanford Hospital	General Surgery	September 10-14, part time	75.00
At: San Francisco Hospital	General Surgery	September 10-14, part time	75.00
The Surgeon General's Office, Dept. of the Army, Washington 25, D. C. At: Brooke Army Hospital, Brooke Army Medical Center, Fort Sam Houston, Texas	General Surgery[11,14b]	October 1-5, full time	None
At: Walter Reed Army Hospital, Army Medical Center, Washington 12, D. C.	General Surgery[11,14b]	December 3-7, full time	None
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	Intensive 2 Weeks Course in Surgical Technique	July 9, 23, Aug. 6, 20, Sept. 10, 24, Oct. 8, 22, Nov. 5, 26, full time	200.00
	4 Week Course in Surgical Technique, Clinical Surgery, Surgical Anatomy, Pre- and Post-Operative Management	July 9, Aug. 6, Sept. 10, Oct. 8 and Nov. 5, full time	300.00
	2 Week Personal Course in General Surgery	September 24, full time	250.00
	1 Week Personal Course in Surgery of Colon and Rectum	September 17, October 15 and November 26, full time	100.00
	2 Week Course in Surgical Anatomy on the Cadaver, Clinical Surgery, Pre- and Post-Operative Management	July 23, Aug. 20, Sept. 24, Oct. 22 and Nov. 19, full time	150.00
	1 Week Personal Course in Breast and Thyroid Surgery	October 1, full time	150.00

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Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	SURGERY—Continued		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	10 Hour Personal Course in Gallbladder Surgery	October 22, full time	$100.00
	2 Week Intensive Review Course Considering Basic Principles in General Surgery	September 10, full time	200.00
	1 Week Personal Course in Esophageal Surgery	October 15, full time	150.00
	Personal Course in Thoracic Surgery	September 12, 10 sessions, part time	100.00
	1 Week Personal Course in Thoracic Surgery	October 8, full time	100.00
	Personal Course in Surgical Pathology, Gross and Microscopic	October 3, 10 sessions, part time	100.00
	Surgical Anatomy on the Cadaver	October 4, 10 sessions, part time	125.00
	Personal Course in Clinical Surgery	September 20, 10 sessions, part time	150.00
	Surgical Technique with Practice	September 5, 10 sessions, part time	200.00
	Personal Course in Surgical Diagnosis, Pre- and Post-Operative Management	September 19, 10 sessions, part time	100.00
	Basic Principles Concerned in General Surgery	September 14, 10 sessions, part time	100.00
	Practical and Didactic Course in Proctoscopy and Sigmoidoscopy	July 10, Aug. 7, 28, Sept. 25, Oct. 23, Nov. 20 and Jan. 15, 3 sessions, part time	50.00
	10 Hour Course in the Treatment of Varicose Veins	Every Monday, 2 days, full time	40.00
	10 Hour Course in the Treatment of Varicose Veins	1st and 3d Wednesday each month, part time	40.00
	Personal Course in Esophageal Surgery	October 2, 10 sessions, part time	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Experimental and Clinical Surgery	September 17-September 16, 12 months, full time[41]	800.00[16]
University of Michigan Medical School, Dept. of Postgraduate Medicine, Ann Arbor, Mich. At: University Hospital	Clinical Exercises for Practitioners	October to December, part time	25.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Mich.	Surgery Seminar	Quarterly, 12 weeks, part time	15.00
University of Minnesota, Center for Continuation Study, Minneapolis 14, Minn.	Fractures and Traumatic Surgery for General Physicians	November 8-10, full time	20.00
Essex County Medical Society, 38-40 Clinton St., Newark, N. J.			
At: Newark City Hospital	Surgical Technique and Principles of Abdominal Surgery	Arranged, 17 sessions, part time, Monday or Friday	200.00
	Surgery of the Autonomic Nervous System	Arranged, 8 sessions, part time	100.00
	51-G Surgical Anatomy of the Chest	Arranged, 12 sessions, part time	150.00
At: Kessler Institute for Rehabilitation, West Orange, N. J.	Amputations	Arranged, 10 sessions, part time	100.00
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Surgery PM 30, Surgery of the Gastrointestinal Tract	October 15-November 9, full time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: St. John's Episcopal Hospital	Office Surgery	October, 8 sessions, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Surgical Aspects of Peripheral Vascular Diseases	Arranged	200.00
	Gastrointestinal Surgery	Arranged	200.00
	Peritoneoscopy	Arranged	100.00
	Surgical Technique	Arranged, 50 hours	375.00
	Thoracic Surgery	October 29-November 17, 3 weeks, full time	325.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Combined Surgical Course, Including Cadaver Surgery and Gynecology	October and January, 3 months, full time	350.00
	Clinical Surgery	October and January, 6 weeks, full time	100.00
	Clinical and Operative (Cadaver) Surgery	October and January, 6 weeks, full time	200.00
	Traumatic Surgery, Including General Surgery, Orthopedic Surgery and Physical Medicine	Arranged, 2 months, part time	200.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: Bellevue and University Hospitals	5910-A Surgery of the Head and Neck[30]	January 7-12, full time	100.00
	660-A Anatomy and Physiology of the Autonomic Nervous System and Their Clinical Application	January 14-19, full time	150.00
	661-A Review of General Surgery (for Specialists)	September 24-October 20, full time	300.00
	663-A Recent Advances in Surgery	September 10-22, full time	200.00
	665-A Surgery	September 24-June 14, full time	700.00
At: Beekman-Downtown, Bellevue, University and Gouveneur Hospitals	666-A Diagnosis and Treatment of Trauma	December 3-8, full time	100.00
At: Beekman-Downtown Hospital	6610-A Trauma of the Genitourinary System	September 11-October 16, part time	50.00
	6611-A Pitfalls in Internal Fixation of Fractures (for Specialists)	November 12-17, full time	100.00
At: Bellevue Hospital	55[illegible] [illegible]	October 8-12, full time	100.00
	55[illegible] [illegible] of [illegible]	January 14-18, full time	125.00
University of Oklahoma School of Medicine and University Hospitals, Oklahoma City, Okla. At: Hillcrest Hospital, Tulsa	Postgraduate Course in General Surgery	October 3-5, full time	15.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, Ore.	General Surgery	November 5-9, full time	50.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	General Surgery	October to May, full time	800.00

References will be found on page 599.

Postgraduate Continuation Courses for Physicians—July 1, 1951 to Jan. 15, 1952—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	THERAPY		
Columbia University, 630 W. 168th St., New York, N. Y. At: Mt. Sinai Hospital	Medicine PM 44, Recent Advances in Therapy	October 17-December 5, part time	$ 35.00
University of Texas Postgraduate School of Medicine, 207 A Hermann Professional Bldg., Houston, Texas At: Robert B. Green Memorial Hospital	Modern Therapeutics	October 26, 25 sessions, part time	25.00
	UROLOGY		
College of Medical Evangelists, 812 N. Boyle Ave., Los Angeles 33, Calif.	General Urology	January 2-February 27, part time	35.00
	Genito-Urinary Diseases	November 12-16, part time	50.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco, Calif.[49] At: Stanford Hospital	Urology for General Practitioners	September 10-14, part time	75.00
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago 12, Ill.	2 Week Intensive Course in Urology	September 24, full time	225.00
American Urological Association, 102-110 Second Ave., Rochester, Minn. At: Hotel Windsor, Montreal, Quebec[45]	Graduate Seminar on Urology	January 7-12, 5 days	50.00
At: Los Angeles, Calif.[46]	Urological Postgraduate Convention	November, 5 days	60.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn 16, N. Y.[23] At: State University College of Medicine at N. Y. C.	Urology	October, 1 month, part time	50.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Urology	October 1, 8 months, full time	800.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y. At: Bellevue and University Hospitals	672-A Urology	September 24-June 14, full time	700.00
	674-A Refresher Course in Basic Urology	November 12-17, full time	60.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Urology	October to May, full time	800.00
	VENEREAL DISEASE		
U. S. Public Health Service Medical Center, Hot Springs National Park, Ark.	Venereal Disease Postgraduate Course	October 15-20, full time	None
U. S. Public Health Service, Atlanta, Ga.	Laboratory Diagnosis of Syphilis	September 10-21 October 22-November 2, full time	None None
	Preparation and Standardization of Serologic Reagents Used in the Laboratory Diagnosis of Syphilis	November 5-23, full time	None
Wayne University College of Medicine, 1512 St. Antoine St., Detroit 26, Minn. At: Social Hygiene Clinic	Conference on Venereal Disease	Quarterly, 12 weeks, part time	15.00
Institute for the Study of Venereal Disease of the University of Pennsylvania, 34th and Locust Sts., Philadelphia 4, Pa.	6 Months Essential Basic Training Course	Arranged, full time	Arranged
	4 Week Intensive Review Course	Arranged, full time	Arranged
	3 Week Intensive Review Course	Arranged, full time	Arranged
	10 Day Refresher Course	Arranged, full time	Arranged

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1. $5.00 for all of the courses.

2. Tentative course.

3. Plus $10.00 laboratory fee.

4. Physicians may apply to National Foundation for Infantile Paralysis for financial assistance to attend course.

5. Residents. Non-residents $225.00 plus incidental fees of about $50.00 for both residents and non-residents.

6. Free to residents of radiology.

7. For members of medical society and A. M. A. $50.00 to non-members.

8. Iowa State Pediatric Society members. Non-members $10.00. Sponsored by Iowa State Pediatric Society in conjunction with U-Iowa.

9. Surgery $910.00.

10. For 1 month, $250.00 for 3 months, $450.00 for 6 months, $650.00 for 9 months and $850.00 for 12 months.

11. Attendance encouraged from Regular, Reserve and National Guard medical officers on active duty with the Armed Forces; Reserve and National Guard medical officers, with the Armed Forces, not on active duty, at no expense to the government, and civilians, at no expense to the government.

12. Attendance limited to Regular, Reserve and National Guard Army medical officers and Regular, Reserve and National Guard Air Force medical officers on active duty. 25 spaces available at each hospital.

13. Attendance limited to Regular, Reserve and National Guard medical officers on active duty with the Army, Navy and Air Force; and civilians on a space available basis, limited to 8 spaces in each class.

14. [illegible] be to [illegible] listed [illegible] one month prior to the opening date of the course:

(a) Applications from Army Medical Officers on active duty only, will be forwarded to the Office of the Surgeon General, Attention: Personnel Division, Career Management Branch.

(b) Army Medical Officers not on active duty and civilian physicians should be forwarded through channels to the Commander of the installation offering the course. Applications will be approved on a space available basis.

(c) Personnel from other federal agencies. Applications should be made through channels as appropriately announced by each agency.

15. Stated 2 week period may be followed by additional studies at $100 per week. Course also may be taken by Philadelphia area physicians on 6 consecutive Thursdays, 36 hours, at $150.00.

16. In addition to tuition fee indicated there is a *$5.00 registration* fee which covers all courses taken within a 12 month period.

17. Course may be taken 1 to 12 months. Tuition prorated accordingly.

18. Course may be taken 3-12 months. Tuition prorated accordingly.

19. For those who find it desirable to spend a shorter period of time than 1 year, arrangements may be made to take this course from 1 to 9 months if facilities permit. Derm. and Syph. 2.

20. For physicians residing outside of Cleveland, $20.00 for those residing in Cleveland, interns no charge.

21. 1st year. $100.00 each successive year.

22. Special training courses in V. D., Mental Hygiene, M and C Health, Hospitals Administration and Medical Care Administration.

23. Of the Medical Society of the County of Kings and State University College of Medicine at N. Y. C.

24. Kansas Medical Society and Kansas State Board of Health also sponsoring.

25. Menninger Foundation, Winter Veterans Administration Hospital, Topeka State Hospital and Kansas State Board of Health and Kansas Medical Society sponsoring.

26. New Jersey State Dept. of Health also sponsors.

27. Also 20 senior Surgical Residents.

28. Or any 4 weeks, $125.00 each week.

29. Designed to meet the requirements for certification by the American Board.

30. For Specialists.

31. Or an equivalent period on a part time basis.

32. [illegible] higan Department of [illegible] Michigan Medical Sch[illegible] College of Medicine.

33. Co-sponsorship of Washington State Medical Ass'n. and Washington Dept. of Health.

34. Sponsored by American Psychoanalytic Ass'n., New York.

35. Advanced Candidates in training only.

36. *Open only* to Physicians who have been formally approved and accepted for training by the Admissions Committee of the Philadelphia Psychoanalytic Institute.

37. Bingham Associates Fund, Contributing agencies.

38. There may be available fellowship endowment stipends for bona-fide pathology residents. There has been in the past and may be possible in the future.

39. Also sponsored by Oklahoma State Dept. of Health.

40. In cooperation with National Foundation for Infantile Paralysis.

41. In cooperation with Division of Tuberculosis, Bureau of State Services, USPHS.

42. No charge for room and board.

43. 4 weeks $110.00, 1 month $200.00 and 2 months $300.00.

44. Under special circumstances student may begin on a date other than September 17 and may be admitted for a period of 6 to 12 months.

45. Sponsored by Northeastern section of the American Urological Ass'n., Buffalo, N. Y.

46. Sponsored by Los Angeles Urological Society, L. A.

47. Sponsored by USPHS and Arkansas State Board of Health.

48. Course given by Hahnemann Medical College, Dept. of Cardiology, Philadelphia.

49. Co-sponsored by San Francisco Dept. of Public Health.

MEDICAL LITERATURE ABSTRACTS

AMERICAN

A.M.A. Am. J. Diseases Child., Chicago

81:313-464 (March) 1951

- *Familial Leukemia: Report of Leukemia in Five Siblings, with Brief Review of Genetic Aspects of this Disease. R. C. Anderson.—p. 313.
- Adrenal Cortex Extract in Pediatrics: Possible Effect on Respiratory System of Newborn. R. W. Provenzano, P. McGovern, R. Schultz and J. Hester.—p. 323.
- Prevention of Minor Skin Irritation (Miliaria) and Impetigo in Newborn. J. Glaser, M. L. Thompson and T. D. Benson.—p. 329.
- *Adverse Mercurial Reactions in Form of Acrodynia and Related Conditions. J. Warkany and D. M. Hubbard.—p. 335.
- Cleidocranial Dysostosis Syndrome: Report of Case in Negro Child Exhibiting Retarded Growth. R. B. Scott and L. O. Banks.—p. 394.
- Dermatomyositis with Nephritis in Negro Child. J. E. Bradley, M. E. Drake and H. P. Mack.—p. 403.
- Mixed Tumor of Liver: Report of Case with Review of Literature. D. H. Milman and D. M. Grayzel.—p. 408.

Familial Leukemia.—A family is reported on in which five of eight siblings have had leukemia in early childhood. Except for a leukemoid reaction in another sibling, no other blood disorders, and only one case of cancer, are known among the 135 near and distant relatives. A brief review is made of the literature dealing with hereditary factors in leukemia. It appears that a genetic factor is often involved, but definite conclusions regarding the mode of inheritance would be premature. Workers generally favor the idea of a low penetrance dominant gene, but such a family as the one reported on in this paper would suggest instead a rare recessive gene with high penetrance. It may well be that in leukemia, as in many other diseases, the mode of inheritance varies in different families, owing to differences in the predisposing genes themselves. There have been 39 previous reports in the literature on the occurrence of multiple cases of leukemia within a single family but this is the first reported family with leukemia in more than three siblings. Videbaek found that 8.1% of 209 leukemic patients had relatives with leukemia.

Mercurials and Acrodynia.—Warkany and Hubbard suggest that exposure of hypersensitive children to mercury is the most important factor in the causation of infantile acrodynia. Exposure to mercury was demonstrated in 38 of 41 acrodynic children by the presence of the metal in their urine. In 23 of these children mild mercurous chloride (calomel), teething powders or anthelmintic tablets containing mild mercurous chloride, ammoniated mercury ointment and mercury bichloride used for rinsing diapers were ascertained to be the sources of mercury. Idiosyncrasy to mercury that manifests itself in acrodynia exists particularly in infants and small children, while older children and adults have a higher tolerance. There are undoubtedly other factors that lower tolerance, but they are unknown at present. Acrodynia is only one of the forms in which hypersensitivity to mercury can manifest itself. Acrodynia has some but not all the recognized manifestations of mercury poisoning. Transitional states between acrodynia and various established forms of mercury poisoning exist. It is possible that metals, drugs and toxic substances other than mercury produce disease pictures resembling acrodynia. The effectiveness of dimercaprol (BAL) in the treatment of acrodynia could not be clearly demonstrated in the series of cases described. It is possible that in cases of long standing the effect is not so striking as in cases of acute mercury poisoning.

A. M. A. Arch. Dermat. and Syphilology, Chicago

63:289-408 (March) 1951

- Further Studies on Mechanism of Adhesive Tape Dermatitis. S. M. Peck, T. J. Michelfelder and L. L. Palitz.—p. 289.
- Interstitial Radium Therapy: Description of Short Intensive Technic. C. F. Lehmann and J. L. Pipkin.—p. 312.
- Early Prognosis of Lupus Erythematosus Discoides. T. Cochrane.—p. 323.
- Neutrophils Resembling L. E. Cells in Artificial Blisters. J. B. Watson, P. A. O'Leary and M. M. Hargraves.—p. 328.
- *Dermatitis and Secondary Leukoderma Due to Fabric-Lined Rubber Gloves: Report of Case. I. Botvinick.—p. 334.
- Concurrent Infestation with Rare Mite and Infection with Common Dermatophyte. A. A. Fisher, A. G. Franks and M. Wolf.—p. 336.
- Rapid Permanent Staining and Mounting of Skin Scrapings and Hair. M. A. Gordon.—p. 343.
- Histopathology of Nodose Lesions of Lower Extremities. L. H. Winer. —p. 347.
- Seborrheic Keratosis and Verruca, with Special Reference to Melanotic Variety. S. W. Becker.—p. 358.

Dermatitis and Leukoderma Due to Rubber Gloves.—For patients with so-called "housewife's" eczema of the hands, dermatologists frequently recommend the use of cotton or fabric-lined rubber gloves for household chores. A recent experience suggests that this recommendation carries with it added risks. A housewife complained of an extremely pruritic dermatitis. It was learned that she had used bluettes® gloves in her household tasks. Patch tests were performed with portions of smooth blue rubber of the outer surface and the rubberized fabric of the inner surface. Results of the tests were positive. The dermatitis responded slowly to treatment. When the woman resumed her household tasks she wore cotton gloves under golden glo® (natural latex) gloves. This was followed by a flare-up. Dryness and superficial scaling of the hands were evident. Blotchy areas of erythema appeared on the face a few hours before the patient's admission to the hospital. On the second day she manifested a generalized pruritic, erythematous, urticarial rash and became extremely disturbed emotionally, to the point of requiring restraints. The patient was treated for varying periods with oral diphenhydramine hydrochloride, doxylamine (decapryn®) succinate, chloral hydrate, codeine, meperidine (demerol®) hydrochloride, colloidal and coal tar solution baths, wet dressings with aluminum acetate solution in 1 to 15 dilution, 1% salicylic acid in petrolatum and one fever treatment with intravenously administered typhoid vaccine. It was concluded that the patient had a contact dermatitis and dermatitis medicamentosa and that diphenhydramine hydrochloride was responsible for the emotional disturbance. Later, scattered areas of leukoderma developed at the sites where the dermatitis had been severest and at the sites of the patch tests. Six months later, repigmentation was noticeable. It was found that one of the bluettes® contained monobenzyl ether hydroquinone, which is the only compound used in the manufacture of rubber articles that has been reported to produce transitory leukoderma.

Anesthesiology, New York

12:1-134 (Jan.) 1951. **Partial Index**

- Physiology of Pain: Abnormal Neuron States in Causalgia and Related Phenomena. R. W. Gerard.—p. 1.
- Clinical Evaluation of Some New Curare Preparations. D. W. Hesselschwerdt, E. L. Rushia and S. C. Cullen.—p. 14.
- Use of Hyaluronidase in Regional Nerve Blocks. J. E. Eckenhoff and C. K. Kirby.—p. 27.
- Manually Assisted and Controlled Respiration: Its Use During Inhalation Anesthesia for Maintenance of Near-Normal Physiologic State—Review. W. G. Watrous, F. E. Davis and B. M. Anderson.—p. 33.
- Syncurine in Endotracheal Intubation. P. J. Bailey and J. F. Murphy. —p. 63.
- Effect of Intravenous Pentothal Sodium With or Without Inhalation of Oxygen on Liver Function. C. H. Walton, J. Saldamando and W. M. Enger.—p. 67.
- Peridural Anesthesia in Thoracic Surgery: Review of 677 Cases. O. B. Crawford, P. Ottosen, W. W. Buckingham and C. A. Brasher.—p. 73.
- Blood Transfusion Reactions from Apparently Compatible Blood. M. M. Strumia.—p. 85.
- Blood Loss During Surgical Operations. J. J. Bonica and C. S. Lyter. —p. 90.

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1940 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

Blood, New York

6:101-194 (Feb.) *1951*

Chronic Hemolytic Anemia with *Erythrocyte Fragility* to Cold and Acid. S. H. Liu.—p. 101.
Limitation of Hemolysis in Experimental [illegible] *to Depletion* of Complement and Isoan[illegible]tions on Dogs Given Successive Transfusions of [illegible] Cells Tagged *with Radioactive* Iron. R. M. Christian, W. B. Stewart, C. L. Yuile and others.—p. 142.
Cholinesterase of *Erythrocytes in* Anemias. J. C. Sabine.—p. 151.
Comparisons Between Bone Marrow Differentials Prepared from Particles and from Random *Samples of Aspirate and* Determinations of *the* Dilution of *Aspirate* with Peripheral Blood Utilizing Radioactive Phosphorus (P^{32}). R. S. Fadem and I. Berlin.—p. 160.
Chemical Studies of Normal and Leukemic Bone Marrow. A. A. Dietz and B. Steinberg.—p. 175.

Journal of Investigative Dermatology, Baltimore

16:71-118 (Feb.) 1951

Comparison in Treatment of Acne Vulgaris. T. Pasieczny and P. Grant.—p. 71.
Local Injections of Streptomycin *with* Intracaine and Epinephrine in Treatment of Cutaneous Tuberculosis: Report of Three Cases. P. D. Foster.—p. 75.
Procaine Penicillin in Early Yaws. F. N. Guimaraes.—p. 77.
Improved Method for Separation of Epidermis of Laboratory Animals. P. Flesch, A. M. Kligman and G. D. Baldridge.—p. 81.
Effects of Applications of Various Substances on Epidermis of Rat. E. O. Butcher.—p. 85.
Effect of X-Radiation on Experimentally Produced Cutaneous Sensitivity. S. G. Cohen, L. D. Mayer and L. H. Criep.—p. 91.
Use of Hyaluronidase by Iontophoresis in Treatment of Generalized Scleroderma. R. J. Popkin.—p. 97.
Oxidative Inactivation of Poison Ivy Allergens by Peroxidase. I. W. Sizer.—p. 103.
Observations on *Biotin.* F. Kalz, V. A. Kral and R. R. Forsey.—p. 111.

Michigan State Medical Society Journal, Lansing

50:145-224 (Feb.) 1951

Treatment of Epilepsy. F. A. Gibbs.—p. 145.
*Late Effects of Cerebral Birth Injury. C. F. McKhann, W. D. Belnap and C. S. Beck.—p. 149.
Prevention of Behavior Problems in Pediatric Practice. L. F. Hill.—p. 153.
Neurogenic Hypertension: Chemical Approaches to Its Amelioration. F. F. Yonkman.—p. 160.
Aneurysms and Arteriovenous Fistulas. H. B. Shumacker Jr.—p. 168.
*Role of Adrenal Cortex in Certain Peritoneal, Pleural and Pericardial Effusions. R. C. Moehlig and A. J. Steinbach.—p. 174.

Late Effects of Cerebral Birth Injury.—Over half of 419 children who had mental retardation, convulsive disorders, and cerebral palsy, singly or in combination, had a history suggestive of birth injury, while in about one of six cases the difficulty could be traced to postnatal injury. In only one out of six did the findings suggest a hereditary or congenital defect as the cause of neurological difficulty. Excluding cases of severe idiocy, 172 cases of probable birth injury were studied by pneumoencephalography, electroencephalography, and psychometric examination. Premature separation of the placenta, placenta previa, kernicterus, prematurity, oversized infant, toxemia, and maternal illness are listed as probable causative and contributory factors in the prenatal period, whereas "heavy" anesthesia and sedation, prolonged labor, the use of oxytocics, breech delivery, cesarean section, cord defects (prolapse, tightening about the neck, or holding back the head), the use of high forceps, and precipitous delivery are the probable causative factors at the time of birth. Sedation and heavy anesthesia appeared as possible causes of 17% of birth injuries. Second in prominence was a story of the head being held back by the nurse or intern until the physician arrived. This is a common practice. Cortical atrophy revealed in pneumoencephalograms is accepted as presumptive evidence that the brain was injured following complete formation. This finding, together with changes attributable to organic disease in the electroencephalographic tracings, was present in almost all patients with a known history of birth injury and in an unsuspectedly large number of other children in whom the history was obscure. Decreased cerebral blood flow was present in cases in whom gliosis might have followed cerebral injury. Behavior disorders in children without retardation, spasticity, or convulsions appear to be possible sequelae of milder degrees of cerebral injury at birth.

Role of Adrenal Cortex in Peritoneal, Pleural, and Pericardial Effusions.—Moehlig and Steinbach present a hypothesis to explain certain peritoneal, pleural, and pericardial effusions, which are found in Meigs' syndrome of ovarian fibroma, some cases of severe hypothyroidism, intestinal lipodystrophy (Whipple's disease), and Addison's disease. This hypothesis assumes that adrenal cortical deficiency is present in all of these syndromes and that this in turn produces disturbances of the serosal layer in these diseases. Embryologic relationships suggest why the adrenal cortex influences the development and function of the mesothelium, and it is already known that the adrenal cortex influences the development and function of other mesodermal structures, namely, the epithelium of most of the urogenital organs, and the striated muscles, both skeletal and cardiac. As evidence in support of their hypothesis the authors cite the following observations. A case of severe hypothyroidism with tremendous ascites and hydrothorax cleared up completely with the administration of adequate dosage of thyroid substance. Since patients with untreated myxedema show an inadequate adrenal cortex response to pituitary adrenocorticotropic hormone (ACTH), the possibility arises that there was adrenal cortical insufficiency in this case and that the administration of desiccated thyroid restored the capacity of the adrenal to respond to endogenous pituitary adrenocorticotropic hormone. This in turn may have corrected the mesothelial disturbance. In Whipple's intestinal dystrophy too there are sometimes signs of increased pigmentation of the skin and hypotension suggestive of functional impairment of the adrenal cortex. The involvement of the mesothelial serous layers then could be due to changes in the electrolyte and water metabolism. The possible relationship of the adrenal cortex to intestinal absorption has been the subject of speculation in both Whipple's disease and sprue, and some patients with Addison's disease have steatorrhea as well as ascites, hydrothorax, and pericardial effusion.

New England Journal of Medicine, Boston

244:239-274 (Feb. 15) 1951

Cardiac Manifestations of Friedreich's Ataxia. A. S. Nadas, M. M. Alimurung and L. A. Sieracki.—p. 239.
*Extreme Hyperglobulinemia in Subacute Hepatic Necrosis. H. J. Zimmerman, P. Heller and R. P. Hill.—p. 245.
Diagnostic and Therapeutic Problems in *Benign Mediastinal Tumors.* G. E. Lindskog and H. W. Kausel.—p. 250.
Hospital Outbreak of Infections with Salmonella Newington. F. A. Neva, R. J. Nelson and M. Finland.—p. 252.
Medicine as Social Instrument: The Hospital and the Community. P. R. Hawley.—p. 256.

Extreme Hyperglobulinemia in Hepatic Necrosis.—A man, aged 36, was hospitalized because of jaundice of three weeks' duration. No other symptoms were present, and the past medical history shed no light on the present illness. A soft, rounded, slightly tender liver edge was felt 3 cm. below the right costal margin. Laboratory tests disclosed extreme hyperglobulinemia and definite hypocholesterolemia. Electrophoretic patterns of the serum revealed that the elevation of globulin was due almost entirely to the gamma globulin level. The highest value of gamma globulin previously reported was approximately 4 gm. per 100 cc. In the reported case the gamma globulin level was 7.31 gm. per 100 cc. For about eight weeks the symptoms changed little, but then there was a turn for the worse and death followed nine days later. The anatomic diagnosis was subacute hepatic necrosis with cirrhosis. Whenever extreme hyperglobulinemia has been described in liver disease, it has been associated with subacute hepatic necrosis or postnecrotic cirrhosis, on a presumed infectious or toxic basis. Whereas no case of Laënnec's cirrhosis has been observed with serum globulin values above 6.12 gm. per 100 cc., four patients with postnecrotic cirrhosis have been described, in addition to the case described above, as having total protein values above 11 gm. per 100 cc., or a globulin value above 8 gm. per 100 cc., or both. It is suggested that marked hyperglobulinemia represents a mounting production of antiliver protein antibody that continues to cause necrosis of the liver. Judging by the few cases in which it has been seen, extreme hyperglobulinemia in liver disease indicates an unfavorable prognosis.

New Orleans Medical and Surgical Journal

103:323-364 (Feb.) 1951

Experiences with New Anticoagulant. G. W. Allen and E. Hull.—p. 323.
Tick Paralysis: Implicating Amblyomma Maculatum. R. S. Paffenbarger Jr.—p. 329.
Weakness of Lower Extremities as Complication of Pregnancy. H. W. Neumann.—p. 332.
Management of Recent Nasal Injuries. F. L. Bryant.—p. 336.
Management of Coccogenic Dermatoses. J. K. Howles.—p. 343.
Malignant Lesions of Skin. J. W. Tedder.—p. 350.
Pathologic Changes in Hematopoietic System Following Antilymphomatous Drugs. P. Pizzolato.—p. 353.

New York State Journal of Medicine, New York

51:425-560 (Feb. 15) 1951

Clinical Results of Treatment of Cancer of Prostate. T. F. Howley.—p. 481.
Diagnosis and Treatment of Testis Tumors. A. L. Dean.—p. 485.
Anomalies of Kidney. M. Campbell.—p. 493.
Urachal Cysts with Report of Two Cases. H. Engster.—p. 499.
Conservative Surgery of Hydronephrosis. V. J. O'Conor.—p. 503.
Modern Concepts of Diathermy. J. Weiss.—p. 506.
Role of Physical Therapy in Rehabilitation. G. M. Raus.—p. 509.
Water as Medium for Therapeutic Exercise. R. L. Bennett.—p. 513.
Development of Care of the Orthopedically Handicapped in New York City. E. M. Bick.—p. 516.
Role of Complete Surgery in Diseases of Pelvis. C. E. Clark and T. V. Judge.—p. 520.
Leiomyosarcoma of Uterus. J. W. Tandatnick and J. I. Kushner.—p. 525.
Migraine Headache: Analysis of 124 Cases Treated by Head-Traction Manipulation and Thiamin Chloride. M. M. Braaf.—p. 528.

Ohio State Medical Journal, Columbus

47:97-192 (Feb.) 1951

Sickle Cell Anemia Simulating Rheumatic Fever in White Race. L. P. Caccamo and L. A. Strutner.—p. 121.
Arterial Embolism—Report of Case. D. C. Caudill, M. T. Hoerner and O. Wright.—p. 125.
Benzodioxane Test in Hypertension: Case Report with Autopsy Findings. R. L. Fulton.—p. 127.
*Observations on 360 Cases of Primary Syphilis (Treated with Penicillin Alone or with Penicillin plus Mapharsen® and Bismuth). E. H. Jones Jr.—p. 131.
Cerebral Angiography. F. H. Mayfield, E. S. Lotspeich Jr., J. R. Simpson and C. R. Hunter.—p. 134.
Mediastinal Hemangiofibroma: Case Report. J. V. Horst and O. A. Beatty.—p. 138.
Carcinoma of Cervix in Pregnancy. R. R. Maier and M. Klein.—p. 139.

Treatment of Primary Syphilis.—Of 360 patients with primary syphilis reported on, 268 were treated with penicillin and 92 with penicillin plus neoarsphenamine (mapharsen®) and bismuth. All the patients completed a minimum of six months of regular monthly follow-up. The median age of incidence was 24 years. The sex ratio was 85 male patients to 15 female patients. There was a febrile Herxheimer reaction in 281 patients. Not the presence, the height, or the absence of a febrile Herxheimer reaction was valuable for prediction of success or failure of treatment. In general the seronegative and low titer seropositive (earlier) primary syphilis patients had a better chance of successful treatment than those with high titers (later). In general the height of the serologic titer at the time of treatment was directly proportional to the length of time required to attain seronegativity, but there were many exceptions to this generalization, as shown in one patient with a titer of 1: 128 who took 24 months to achieve seronegativity. Early diagnosis, preferably by dark field test, is indispensable for good results. One week of penicillin therapy totaling up to 4,800,000 units proved to be not enough for primary syphilis. In the author's experience penicillin plus neoarsphenamine and bismuth has proven somewhat more efficacious than penicillin alone, the penicillin in each instance being confined to one week of therapy and the bismuth and neoarsphenamine, when added, requiring eight additional weekly treatments.

Psychoanalytic Quarterly, Albany, N. Y.

20:1-164 (Jan.) 1951. **Partial Index**

Technical Implications of Ego Psychology. H. Hartmann.—p. 31.
Early Development of Ego: Identification in Infancy. I. Hendrick.—p. 44.
Ego Psychology and Psychotherapy. M. M. Gill.—p. 62.
Character and Resistance. R. Sterba.—p. 72.
Traumatic Effect of Surgical Operations in Childhood on Integrative Functions of Ego. M. L. Miller.—p. 77.

Texas State Journal of Medicine, Fort Worth

47:65-130 (Feb.) 1951

Low Back Pain: I. Studies on Pain Intensity in Obstetrics Including Causes, Reactions and Methods of Control. C. T. Javert and J. D. Hardy.—p. 68.
Id.: II. Urologic Aspects. E. White.—p. 75.
Id.: III. Neurologic Aspects. C. E. Patterson.—p. 78.
Diagnostic and Therapeutic Nerve Block. R. C. L. Robertson.—p. 79.
Diagnosis of Upper Abdominal Pain. M. P. Kelsey.—p. 82.
Hematuria: Its Significance and Management. H. M. Spence.—p. 86.
*Bilateral Cortical Necrosis of Kidneys: Report of Two Cases and Considerations of Pathogenesis. A. Smith and E. E. Muirhead.—p. 88.
Renal Calculi: Etiology and Differential Diagnosis. V. Vermooten.—p. 96.
Retropubic Prostatectomy. K. B. King and F. Fuqua.—p. 101.
Sliding Internal Fixation in Fractures of Long Bones Allowing End-to-End Impaction. L. W. Breck.—p. 105.
Surgical Repair of Scarring and Ulceration of the Anterior Tibial Surface. C. W. Tennison.—p. 108.

Bilateral Cortical Necrosis of Kidneys.—The occurrence of bilateral cortical necrosis of the kidneys is reported in a woman aged 29, seven months pregnant, and in an infant with diarrhea and circulatory failure. Both patients died, and necropsy was performed. Both cases demonstrated the greater sensitivity of the outer zones of the renal cortex to the lesion of cortical necrosis. There was focal necrosis in the zone immediately adjacent to the medulla in both cases, and consequently the juxtamedullary zone was not completely spared. In the case of the woman necrosis of the blood vessels was revealed only within the necrotic areas, and no classic thrombosis was seen. The glomeruli within the necrotic areas were distinctly congested. This distention of glomerular capillaries by red blood cells precluded the primary occurrence of thrombosis within preglomerular arteries. These observations are in keeping with those cited in the literature. The pathogenesis of bilateral (symmetrical) cortical necrosis of the kidneys is controversial. The condition is considered to result from ischemia, but various concepts of the cause of the ischemia have been advanced. Cortical necrosis was induced in rabbits by the injection of staphylococcic toxin into a peripheral vein and directly into the renal artery. Two major morphological changes, marked glomerular and postglomerular congestion, suggesting stasis, and cortical necrosis were noted. No thromboses or arterial necrosis outside the necrotic areas were observed. The thesis of Dunn and Montgomery, which considers cessation of glomerular blood flow as the cause of the ischemia, appears to be supported by these observations. It is suggested that the toxin causing damage to the glomerular membrane thereby effects a rapid escape of plasma fluid into the tubule and that postglomerular capillary stasis also may play a part in the mechanism of ischemia. The immediate cause of the glomerular damage was not elucidated in the authors' experiments. Although cortical necrosis was produced readily, the same technique did not yield lower nephron nephrosis. These observations justify caution in ascribing varying intensities of the same mechanism as operating in the pathogenesis of the two lesions.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

59:49-96 (Feb.) 1951

Experiences with Natural Childbirth: Report of 200 Cases from Private Practice and Public Clinics, Including Four Sets of Twins. J. E. Stoll.—p. 49.
Diagnosis and Treatment of Radiation Sickness in Atomic Warfare. E. P. Cronkite.—p. 55.
Oral Lesions in Female Patient: Review. F. G. Everett.—p. 62.
Protein, Fat and Carbohydrate in Etiology of Eclamptic Toxemia. S. S. Garrett.—p. 66.
Estimation of Dose from Radiation Applicators Used in Treatment of Carcinoma of Uterine Cervix. W. Gaines and N. E. Scofield.—p. 71.
Pregnancy Complicated by Spina Bifida and Meningomyelocele: Review of Literature and Report of Case. J. L. Slater and K. P. Russell.—p. 76.
Postoperative Vocal Cord Fixation. C. P. Schlicke.—p. 84.
Traumatic Division of Perineal Body and Rectovaginal Septum: Case Report with Repair of Defect. R. N. Rutherford and T. M. Armstrong.—p. 88.
Clinical Evaluation of Surital. A. C. Kirchhof.—p. 90.

FOREIGN

Journal of Pathology and Bacteriology, Edinburgh

62:501-676 (Oct.) 1950. **Partial Index**

*Nature of Neurofibromatosis and Related Lesions, with Special Reference to Certain Lesions of Bones: Illustrating Influence of Intrinsic Factors in Diseases when Development of Body is Abnormal. K. Inglis. —p. 519.
Distribution of Haemolysins in Pathogenic and Non-Pathogenic Staphylococci. S. D. Elek and E. Levy.—p. 541.
Pulmonary Haemosiderosis of Cardiac Origin. A. C. Lendrum.—p. 555.
Tetanus Intoxication of Brain Stem in Rabbits. E. A. Wright, R. S. Morgan and G. P. Wright.—p. 569.
Solitary Plasmocytoma of Humerus in Mesothorium Worker. G. Lumb. —p. 585.
Further Observations on Effect of Anterior Pituitary Extract in Alloxan Diabetes. R. F. Ogilvie.—p. 639.

Neurofibromatosis and Related Lesions.—A case of generalized neurofibromatosis is described in which a malignant growth and spinal curvature were present in addition to the skin lesions. According to the hypothesis advanced in this paper, it is not neurofibromatosis as such that is inherited but a predisposition to the disease, a predisposition that is thought to influence the development of a great variety of lesions at the basic intrinsic factor level, a less varied group of lesions at the neural intrinsic factor level and a still more restricted group of lesions at the neurofibromatosis level. Lesions representative of all three levels may be present in the same person, and, as these lesions may lead to secondary ones, it may prove difficult to discover the etiology. Bone lesions, like spinal curvature, congenital pseudarthrosis of the tibia and small size of certain individual bones, are thought to be related to neurofibromatosis at the basic intrinsic factor level. It is suggested that intrinsic factors may play a part in the etiology of a variety of conditions that occur in patients or their close relatives who, though free from neurofibromas, have one or more lesions belonging to the neurofibromatosis complex, namely, neurilemmoma, meningioma, fibroma, lipoma, angioma, tumors of the glioma group in the brain or cord, tumors of the optic nerve, glial hyperplasia, epilepsy, cutaneous pigmented patches, spinal curvature, congenital pseudarthrosis of the tibia, small size of bones, hydrocephalus and spina bifida.

Lancet, London

1:299-358 (Feb. 10) 1951

Extrapleural Pneumothorax in Treatment of Pulmonary Tuberculosis. M. Murstad.—p. 299.
*Hirschsprung's Disease. M. Bodian, C. O. Carter and B. C. H. Ward. —p. 302.
*Relation of Penicillin Sensitivity in Staphylococci to Clinical Manifestations of Infection. J. C. Sherris and M. E. Florey.—p. 309.
Ureteric Dysmenorrhoea. G. D. Read.—p. 312.
*Changes in Blood Chemistry After Surgical Operations. A. W. Wilkinson, B. H. Billing, G. Nagy and C. P. Stewart.—p. 315.
Potassium Deficiency in Pyloric Stenosis. C. F. Hawkins, T. L. Hardy and H. H. Sampson.—p. 318.
Potassium Deficiency in Idiopathic Steatorrhoea. M. Lubran and P. M. McAllen.—p. 321.
Prolonged Abnormality of Cerebrospinal Fluid After Cisternal Streptomycin. D. Beynon.—p. 322.
Gall-Bladder Disease in Childhood. R. N. Jones.—p. 324.
Treatment of Acute Leukaemia with Aminopterin. J. F. Wilkinson and C. Gardikas.—p. 325.
Danger of Penicillin Therapy in Gonorrhoea. A. A. M. Reekie.—p. 327.
Haemopoietic Effect of Thymidine in Pernicious Anaemia. K. Hausmann. —p. 329.

Hirschsprung's Disease.—Megacolon has been divided into Hirschsprung's disease proper and idiopathic megacolon. The second group is much the commoner, and here megacolon results from chronic constipation. Hirschsprung's disease proper is a congenital malformation, only microscopically demonstrable. Pathologically it is an agenesis of intramural ganglion cells and dysplasia of autonomic nerve bundles. Its functional manifestation is lack of coordinated peristalsis in the affected segment, leading secondarily to an active type of megacolon in the bowel proximal to this. The demonstration by barium enema of undilated or narrow bowel distal to the megacolon is diagnostic. Resection of the inert distal bowel by rectosigmoidectomy is now considered the rational treatment of Hirschsprung's disease. A total of 40 consecutive cases of Hirschsprung's disease (37 in boys) are the basis of this report. A genetic study of the disease was made in the families of 37 of these children. The evidence supports a genetic determination of the disease. The over-all chances of a male sibling of a patient with a known case being affected are about 1 in 5; those of a female sibling being effected are small. Of 37 patients who were treated by rectosigmoidectomy, three died during or after operation and in two others the operation has been very recent. The other 32 children are all in excellent condition. Half of them require no laxatives, and only three complain of occasional abdominal distention. Pathologic studies uniformly revealed the expected picture in the terminal undilated segment of bowel. A review of published reports shows that the length of the involved segment varies significantly. In over 90% of the reported cases there are pathologic changes in the rectum and part or all of the sigmoid colon. Less than 10% of patients have extremely long abnormal segments that appear to be incompatible with life if untreated.

Penicillin Sensitivity in Staphylococci.—In the past three years several bacteriological laboratories have reported an increasing incidence of penicillin-resistant strains of Staphylococcus pyogenes, and some writers have concluded that the clinical value of penicillin is steadily diminishing. It seemed worth while, therefore, to see whether a clear-cut distinction could be established between penicillin-sensitive and penicillin-resistant strains of staphylococci, and, if so, whether this distinction was reflected in the clinical manifestations of infections caused by these organisms. The material for the inquiry was collected between November 1948 and May 1950 from practitioners and from three hospitals. The great majority of the patients from whom the material was obtained had previously received penicillin treatment. There was a clear bacteriological distinction between penicillin-sensitive and penicillin-resistant staphylococci. All sensitive strains were of the same order of sensitivity as the Oxford Staphylococcus, and all the resistant strains produced penicillinase. The two types of staphylococci were in the main associated with different types of lesions—the penicillin-sensitive strains with acute and closed or deep-seated infections, whether acute or chronic, the resistant strains with superficial lesions. The penicillin-resistant staphylococci were significantly less often associated with signs of inflammation or suppuration than the sensitive strains. In view of the different types of lesion with which they were associated, this result cannot be interpreted as indicating that the resistant strains were less virulent than the sensitive, but the difference in the inflammatory signs associated with the two types of infection may help to bring into perspective the clinical importance of the reports of an increasing incidence of penicillin-resistant staphylococci.

Changes in Blood After Operations.—Studies on the effects of surgical operations on nitrogen and electrolyte metabolisms revealed that immediately after operation the urinary excretion of nitrogen and potassium was increased, whereas that of sodium and chloride was decreased. This appeared to be a fundamental part of the body's response to injury and to be independent of the type of surgical operation; it was not abolished by dietary measures. Studies on 30 persons, including four healthy controls, were made to ascertain whether corresponding changes took place in the blood. Changes in the composition and volume of the blood after radical surgical operations followed a general pattern, which was independent of the type of operation or the method of postoperative feeding. In all the patients there was a sudden fall in the plasma protein level, in particular the albumin concentration. In most cases the globulin concentration gradually rose to values well above the preoperative levels. Increases in amount of nonprotein (urea) nitrogen were observed in some patients. Hemoconcentration on the day after operation, followed by hemodilution, was observed in all patients. Changes in hematrocrit values were accompanied by corresponding changes in red blood cell count. An immediate reduction in total blood chloride, with an inconstant reduction in plasma chloride, was followed in most patients by a rise in total blood chloride. There were corresponding changes in the serum sodium. There

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An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

was some evidence that electrolyte ions were transferred from the plasma to the red blood cells. On the day after operation there was a significant reduction in plasma and blood volume and in the total amounts of proteins and sodium circulating in the plasma. The measurements of the "thiocyanate space," an attempt to determine the volume of extracellular fluid, were not entirely satisfactory. The small changes in the concentrations of the blood constituents indicate the efficiency of differential renal function in assisting the production of the inflammatory exudate; they emphasize the true biological function of the blood as a vehicle.

Medical Journal of Australia, Sydney

1:1-68 (Jan. 6) *1951.* Partial Index

Internal Medicine: Its Development and Practice in Australia During 50 Years. C. G. McDonald.—p. 1.
Development and Practice of Surgery in Australia During 50 Years. V. Hurley.—p. 5.
General Practice: in Urban Areas. L. Cook.—p. 12.
General Practice: In Country Areas. L. R. Mallen.—p. 16.
Fifty Years of Medical Research in Australia. E. V. Keogh.—p. 24.
Impact of Two World Wars on Medicine in Australia. A. S. Walker. —p. 32.

1:69-104 (Jan. 13) *1951*

Medical Education in United States: With Some Reflexions on the Future in Australia. A. A. Abbie.—p. 69.
*The "Trap" Headache. J. Bostock.—p. 80.
Headache of Nasal Origin. R. H. Bettington.—p. 82.
Congenital Heart Malformations in Paediatric Practice. M. L. Powell. —p. 85.

The "Trap" Headache.—In an attempt to discover the cause of his own headaches, Bostock first investigated errors of refraction, but the purchase of glasses with various corrections for his astigmatism had only fleeting effects on the headaches. The septic focus theory and the gastrointoxication theory were then investigated, but neither tonsillectomy nor purgatives had more than a temporary success. Then it was suggested to him that the chief cause is repressed hate. Repressed hate is related to conflict. There is a "war in the mind" between the desirable and the obtainable. There is an underlying frustration; the sufferer is in the "trap." He wishes to escape, but the exits are barred. The situation is "hate-full." When this arises the headache appears. The author gives illustrative examples of "trap" headaches and shows that treatment by psychotherapy is highly satisfactory. He believes that the term migraine should be redefined and suggests a new definition. Headache is the registration in consciousness of changes in potential in the regulating mechanism that provides a neural energy constant. Changes in this potential can be due to organic causes. This accounts for the identical nature of the headache in both organic and psychological types.

Proceedings of Royal Society of Medicine, London

43:937-1136 (Dec.) 1950. Partial Index

Antithyroid Substances in Treatment of Hyperthyroidism. D. M. Dunlop and C. F. Rolland.—p. 937.
Mechanism and Prevention of the Rheumatic State. W. H. Bradley. —p. 979.
Radiology of Infected Temporal Bone. H. Graham-Hodgson.—p. 989.
Observations on Extent of Denervation After Thoracic and Thoraco-Lumbar Sympathectomy. M. Wilson.—p. 1065.
Toxic Effect of Streptomycin on VIII Cranial Nerve. J. A. B. Thomas. —p. 1107.
Electro-Encephalography in Relation to Otorhinolaryngology. J. D. Spillane.—p. 1111.

Semaine des Hôpitaux de Paris

27:503-534 (Feb. 14) *1951*

Contribution to Study of Intrapulmonary Accumulation of Fat and of Oil Pneumopathy. J. Delarue, R. Depierre, J. Roujeau and J. Paillas. —p. 503.
*Histologic Observations on Icterus Occurring During Treatment with Streptomycin. M. Janbon and L. Bertrand.—p. 510.

Icterus and Streptomycin Therapy.—Needle biopsies of the liver were obtained by anterior thoracic route in seven of 20 cases of icterus occurring during treatment with streptomycin. Microscopic examination of the liver tissue specimens revealed constant periportal infiltration, frequent centrolobular disorganization and a normal aspect of the intermediate liver cell cords except for an increase of pigment and mitosis at the border of the central lesions. These observations suggest that icterus occurring in the course of streptomycin therapy is not related to a toxic action of the antibiotic, but to inoculation hepatitis (homologous serum jaundice), the mechanism and anatomic lesion of which are the same as those of icterus occurring in the course of other methods of treatment in series. The lesions are also the same as those of epidemic hepatitis. Results of biopsy of the liver thus emphasize the infectious nature of homologous serum hepatitis, particularly of the hepatitis observed in the course of streptomycin therapy, and of epidemic hepatitis. Biopsy of the liver thus confirms the experimental findings and epidemiological observations of Havens and of Neefe with respect to inoculation jaundice occurring in the course of other methods of therapy.

Tubercle, London

32:25-48 (Feb.) *1951*

Role of Pneumoperitoneum in Treatment of Pulmonary Tuberculosis: Review of 226 Cases. E. L. Williams.—p. 26.
Trauma and Tuberculosis. J. Sumner and E. Nassau.—p. 33.
Relation Between Tuberculosis of Skin and Primary Infection. *H. J.* Ustvedt and I. W. Østensen.—p. 36.
Diaphragm in Pregnancy. C. J. Stewart.—p. 40.

Ugeskrift for Laeger, Copenhagen

113:107-136 (Jan. 25) 1951

*Bronchography with Water Soluble Contrast Substance. K. Schultz-Møller. —p. 107.
Esophagography and Cancer. H. B. Mathiesen.—p. 116.
Technique in Administration of Epidural Anesthesia in Thoracic Surgery. P. Ottosen.—p. 119.

Bronchography with Water Soluble Contrast Substance.—Schultz-Møller reports on 47 bronchography series done in the course of about a year with water soluble contrast substance. He states that while this procedure is more elaborate and time consuming than bronchography with iodized oil, and requires a larger personnel, the contrast substance disappears rapidly after the examination and never affects later roentgen examination of the lung. It seems to be less injurious to the lung tissue than iodized oil. The method fails less often than bronchography with iodized oil and gives more certain results.

Zentralblatt für Chirurgie, Leipzig

75:1689-1816 (No. 24a [Special Issue]) *1950.* Partial Index

Primary Resection of Perforated Jejunal Ulcer. E. Wachs.—p. 1690.
Surgical Treatment of Gastric and Duodenal Ulcers in Aged Persons. Schmechel.—p. 1698.
Aspects of Gastric Lipomas. K. Mangel.—p. 1708.
*Linitis Plastica of the Stomach. H. Kolpak.—p. 1712.
Pathology of Meckel's Diverticulum. G. Weise.—p. 1725.
Interposition of Colon Between Liver and Diaphragm. *You-Ming Liau.* —p. 1728.
Treatment of Ulcerative Colitis. H. Schmorell.—p. 1735.
Pneumococcic Peritonitis. H.-J. Dammermann.—p. 1748.

Linitis Plastica.—Kolpak stresses that the pathogenesis of linitis plastica is not uniform, since inflammatory changes as well as scirrhous carcinoma or carcinoma fibrosum may present the picture of this condition. Thus a diagnosis of linitis plastica does not yet permit a decision as to whether the lesion is benign or malignant. When Brinton coined the term linitis plastica in 1859, he wanted to stress the extraordinary hypertrophy of the submucous connective tissue of the stomach. The author briefly cites the opinions of different authors on linitis plastica and then describes two cases in which the macroscopic aspects of a gastric lesion suggested this condition but in which microscopic examination revealed carcinoma fibrosum (scirrhous carcinoma) in the first patient and colloid (gelatiniform) carcinoma in the second. The author believes that if the surgeon encounters linitis plastica, he should proceed as if the lesion were carcinomatous. Rapidly prepared histologic sections are inadequate for a definite diagnosis. In the course of a thorough histologic study special attention must be given to the marginal portions of the tumor and to the regional lymph nodes, which on superficial inspection may appear normal.

BOOK REVIEWS

The Eye Manifestations of Internal Diseases (Medical Ophthalmology). By I. S. Tassman, M.D., *Associate Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Third edition.* Cloth. $12. Pp. 672, with 279 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1951.

This book offers an important contribution to the medical literature because of its systematic exposition of the relation between various general diseases and ocular pathology. It is a valuable reference book for the internist and specialist in other fields, because it clarifies this relation and provides insight into the ophthalmological aspects. To the ophthalmologist it presents a broad view and emphasizes a relation that is all too easy to minimize in such a highly specialized field.

No new chapters have been added to the present edition, but an attempt has been made to bring all material up-to-date. The first five chapters, dealing with basic anatomical and clinical aspects of ophthalmology, will be of interest chiefly to those without previous ophthalmological training. The chapters on congenital and hereditary eye manifestations and on infections and infectious diseases contain much important information for all readers. In the final chapters there is a systematic discussion of the ocular complications of a wide variety of conditions involving all organs and systems. This portion has particular value as a reference source for rare and unusual conditions, some of them occurring so infrequently as to be unfamiliar in their ophthalmological aspects.

The book is well written and well edited and contains adequate illustrations. It is highly recommended to anyone with an interest in the subject.

Florence Nightingale. By Lucy Ridgely Seymer. Cloth. $1.75. Pp. 154, with 9 illustrations. The Macmillan Company, 60 Fifth Ave., New York 11, 1950.

Intimate details of the life and background of this woman whose name has come to be synonymous with nursing are given in a sympathetic and enthusiastic review of her principal activities. As the author points out, Florence Nightingale, who lived to the age of 90, witnessed a period of great social evolution, and she herself was an important factor in the development of some of the new concepts.

After presenting data on the childhood and youth of Florence Nightingale, as well as her preliminary nursing training, the author gives a detailed report on the important part played by the "Heroine of the Crimea" during that two year war. There are two chapters devoted to this, followed by accounts of her services to various commissions and subcommissions studying army nursing and hospital problems, the founding of her nursing school, and her work for India. There is a chapter on the general subject of her writing, and the final chapter describes her last years, in which she was able to abandon somewhat the aloofness that governed many of her earlier years. An appendix lists the principal events in her life; another contains notes on "minding baby," and a third gives the various biographies of this pioneer nurse.

Klinische Haematologie: Ein Grundriss für Studierende und Ärzte. Von Professor Dr. Werner W. Siebert, *Direktor der medizinischen Klinik am städtischen Krankenhaus Moabit, Berlin.* Cloth. 31 marks. Pp. 260, with illustrations. Urban & Schwarzenberg, Thierschstrasse 11, München 22; Meinekestr, 13, Berlin W. 15, 1950.

The book is intended as a basic textbook for students and physicians. It serves only this purpose. The text is sketchy, without thoroughness in background or discussion of controversial materials. The illustrations are poor. There is a good section on definitions, which, in view of the confusion in hematological terminology, is most helpful. The section on methodology is also good and adds to the value of the book. The absence of a bibliography represents a grave deficiency. Unfortunately, the book contributes nothing new to the hematological literature.

An Introduction to the Study of Viruses. By Kenneth M. Smith, F.R.S., *Director of Plant Virus Research Unit, Agricultural Research Council, Molteno Institute, Cambridge.* Cloth. $2.50. Pp. 106, *with 16 plates.* Pitman Publishing Corporation, 2-6 W. 45th St., New York 19; Sir Isaac Pitman & Sons, Ltd., Pitman House, 39-41 Parker St. Kingsway, London, W.C.2, *1950.*

This book reflects the author's attempt to discuss the viruses causing disease in man, animals, and plants in one volume. The book is divided into chapters presenting the history of virology; the modes of spread and arthropod relations of viruses; a brief description of some representative virus diseases, and the isolation, physical and chemical properties, electron microscopy, serology, and control of viral infections.

This small volume is fascinating reading. The author certainly has the faculty of condensing an enormous richness of material into a few pages and presenting it in such a way that medical, veterinary, and plant virologists can equally profit from its reading. The plates contain excellent black-and-white illustrations, mostly microphotographs by Markham and Smith. The last pages of the book consist of a well-selected bibliography.

The Conquest of Malaria. By Dr. Jaime Jaramillo-Arango. Cloth. 21s. Pp. 125, with 36 plates. William Heinemann, Ltd., 99 Great Russell St., London, W.C.1, 1950.

In this small volume, the author attempts to recall the historical struggle against malaria and to record the names of pioneers who have added most important, fundamental contributions to the knowledge and treatment of the disease. It is divided into three parts: the mosquito-malaria theory, a critical review of the basic facts in the history of cinchona, and progress in the knowledge and treatment of malaria. About three-quarters of the book is devoted to the first two parts, which are treated in a comprehensive manner. Antimalarial drugs other than cinchona derivatives are dealt with very sketchily in part 3. Chlorguanide hydrochloride ("paludrine"), which receives major attention in the last part of the book, could be more adequately discussed, and the vast amount of research carried out in the United States during World War II receives most superficial discussion. Practically no mention is made of the importance of insecticides and DDT, which will probably prove of greater value than all therapeutic measures in the ultimate conquest of malaria.

The book is readable but cannot be recommended as a well-balanced monograph on the history of antimalarial therapy.

Florence Nightingale 1820-1910. By Cecil Woodham-Smith. Cloth. $4.50. Pp. 382, with illustrations. McGraw-Hill Book Company, Inc., 330 W. 42d St., New York 18; Aldwych House, Aldwych, London, W.C.2, *1951.*

Cecil Woodham-Smith has developed an unsual story of Florence Nightingale, which goes far beyond any previous biography because of her access to letters and documents never before used in the Nightingale story. The early chapters covering the period of Florence Nightingale's life up to the time of her training as a nurse are really a study in psychiatry. During this period, the conflicts of an ambitious young lady with a family who wanted her to be a social butterfly led her to the verge of a psychosis, which is well described by Mrs. Woodham-Smith.

The description of Florence Nightingale's baptism of fire during her training period and the Crimean War reports in detail physical and administrative conditions that were intolerable. The detailed analysis of the problems at hand and Miss Nightingale's reaction to them makes one feel that one is living with her as part of her inadequate staff.

Shortly after her return to England, Miss Nightingale suffered a physical exhaustion which caused her to be bedridden for most of the rest of her long life. Yet, in spite of this, she accomplished many remarkable things that had never been accomplished by anyone in the best of health. The political manipulation carried on in the government in England, particularly in the War Department and in the Indian Office, was sufficient to break many powerful politicians; yet, working from her bed, Miss Night-

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The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

ingale analyzed the situation so as to direct her work toward reasonably successful conclusions and was able to command the respect of all who worked with her. Her many interests are astonishing and are well set forth in this biography. Not only did she raise nursing to the level of a profession, but she established visiting nursing, improved hospital construction and administration, was deeply concerned with environmental sanitation, rearranged the administration of the entire medical service of the army, and made many contributions to the broad field of social welfare, particularly among the underprivileged classes of England. As so often is the case, her real recognition did not come until she was too old to understand, in spite of the fact that during her entire period of activity she received the continuing appreciation of the soldiers whom she served during the war.

Any physician involved in administrative medicine or concerned with the problems of government as they relate to medicine should read Mrs. Woodham-Smith's "Florence Nightingale 1820-1910." Any physician in an administrative position who feels that he has problems will discover that the problems that he has are insignificant when compared with the administrative problems that Miss Nightingale had throughout the greater portion of her life.

Taschenbuch der inneren Medizin. Von Prof. Dr. Walter Seitz, Direktor der Med. Univ. Poliklinik München. Cloth. 15 marks. Pp. 344, with 15 illustrations. Wissenschaftliche Verlagsgesellschaft m. b. H., Tübinger Strasse 53, Stuttgart-1, 1950.

This little pocketbook measures 5 by 7 inches and is described on the jacket as designed to present the entire knowledge of internal medicine in epitomized form. The contents, in 18 sections, cover diseases of the lungs, pleura, blood vessels, heart, blood-forming organs, upper and lower digestive tract, liver, biliary system, pancreas, kidneys, lower urinary organs, locomotor system, endocrine system, and also diseases due to animal parasites, disorders of metabolism, infectious diseases and the commoner poisons. In addition, there is a table of notifiable infectious diseases, which in the United States, however, varies from state to state, and the incubation period of the infectious diseases is listed in another table.

The descriptions of the various diseases usually follow a fixed order covering their origin, symptomatology, diagnosis, treatment, and prognosis. The attempt to include the entire field of internal medicine in so cramped a space means considerable compression, though the author usually manages to present the important data in clear language. It is true that there are occasional errors and omissions: the malaria of drug addicts, rat bite fever, and ornithosis are not mentioned, nor is heroin and marihuana addiction. These lacunae do not detract from the high informative level of most of the material presented.

The book is well printed on good paper, but the type, though clear, is small. The cloth binding is substantial and attractive. There are a few well-designed diagrammatic illustrations and a good index. No bibliographic references are included. The scope of internal medicine has so widened in the past half century that it is a difficult feat to cover the field completely in such small compass, but a book of this type is doubtless of some value for quick reference or for a rapid review of the subject.

Blood Clotting and Allied Problems: Transactions of the Third Conference, January 23-24, 1950, New York, N. Y. Edited by Joseph E. Flynn. Cloth. $3. Pp. 224, with 52 illustrations. Josiah Macy, Jr. Foundation, 565 Park Ave., New York 21, 1950.

This book contains the verbatim report of the formal and informal discussions of many aspects of blood clotting by the following experts: L. B. Jaques, A. U. Blaustein, I. S. Wright, L. M. Tocantins, C. E. Brambel, F. D. Mann, A. J. Quick, J. E. Flynn, K. M. Brinkhous, J. A. Ferguson, N. W. Barker, J. T. Edsall, J. H. Olwin, R. S. Overman, W. H. Seegers, B. Alexander, J. G. Allen, H. J. Tagnon, G. E. Burke, J. D. Ferry, L. A. Wood, and others.

The discussions are centered specifically around the newer anticoagulants, "danilone" (phenylindanedione [PID]), ethyl biscoumacetate (tromexan® ethyl acetate), and paritol® (a sulfated mannuronic acid); the use of vitamin K in anticoagulant therapy; the mode of action of bishydroxycoumarin (dicumarol®); problems of prothrombin assay, and accessory factors needed for coagulation.

This book contains the latest advances in the field of coagulation, presented and discussed by those who have made these advances. For those interested in blood clotting, this book is highly recommended and even required. For the student and practitioner, it is too technical and academic to be very useful.

Progressive Resistance Exercise: Technic and Medical Application. By Thomas L. DeLorme, B.S., M.D., Assistant in Physical Medicine, Massachusetts General Hospital, Boston, and Arthur L. Watkins, A.B., M.D., Assistant Clinical Professor of Medicine, Harvard Medical School, Boston. Foreword by Joseph S. Barr, M.D. Cloth. $5. Pp. 245, with illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1951.

Interest in progressive resistance exercise has developed rapidly since Dr. Thomas DeLorme initiated studies concerning this type of exercise at the Gardiner Army General Hospital in Chicago during World War II. Drs. DeLorme and Watkins have now prepared an excellent general textbook describing in careful detail the technic and medical application of this particular type of exercise. As mentioned in Dr. Barr's foreword, the system of exercises described "has a sound physiologic basis and muscles subjected to this type of exercise can be shown to have increased power both to the satisfaction of the patient and the physician."

The book is divided into ten sections: (1) introduction, (2) physiology by Frances A. Hellebrandt, (3) principles, (4) technics, (5) fractures, (6) knees by Francis E. West, (7) hips, (8) neurological conditions, (9) medical conditions, and (10) adolescents by J. Roswell Gallagher.

A common error is to attempt to restore muscular power by endurance-building exercises. Power is best restored when one offers heavy resistance to muscular effort. The authors have devised elaborate apparatus and detailed technics for progressive resistance exercises and then have discussed carefully the indications for the restoration of muscular power by means of these progressive resistance exercises. As pointed out by Dr. Barr, the technics described have been tested by practical clinical use. The volume should be useful to physicians interested in physical medicine, orthopedists, and other physicians who are concerned with problems of muscular rehabilitation, as well as to the therapists who assist such physicians.

Die Tuberkulose: Ihre Erkennung und Behandlung. Von C. Arold, et al. Herausgegeben von Prof. Dr. Hellmuth Deist und Prof. Dr. Hermann Krauss. Cloth. 68 marks. Pp. 754, with 297 illustrations. Ferdinand Enke, Hasenbergsteige 3, Stuttgart, W., 1951.

This textbook has been compiled in the best tradition of the comprehensive German "Handbuch." It deals thoroughly with all aspects of the diagnosis and treatment of tuberculosis. The thirteen chapters include pathology, microbiology, chest, orthopedic, childhood, abdominal, urogenital, skin, eye, ear, and upper respiratory tract tuberculosis, with a special section on the surgical treatment of the pulmonary localizations of this disease. In spite of the differences in the approach of the various coauthors to the subject, tuberculosis is considered throughout the entire book as a generalized disease with local manifestations. On the whole, the concepts of Schroder, Sauerbach, and Brauer are being followed and enlarged. There is a real richness of material and references, especially from Germany. One misses, for example, Western methods of laboratory diagnosis and prevention of tuberculosis. Most of the illustrations are very good, especially the histologic sections. The book has been carefully edited and printed.

Diabetes Guide Book for the Physician. Paper. Gratis. Pp. 79. American Diabetes Association, Inc., 11 W. 42nd St., New York 18, 1950.

This convenient pocket-sized book was prepared by the Committee on Education of the American Diabetic Association. Intended as a guide for physicians, it covers in outline form the commonly accepted procedures of diagnosis and treatment of diabetes mellitus, hypoglycemic reactions, and diabetic coma. The section dealing with the calculation of diabetic diets is particularly instructive. The principle of food exchanges is explained, and a number of sample meal plans are listed. Short lists of references suitable for the physician and for both the patient and the physician have been included. This little manual will undoubtedly live up to its aim, to help the busy medical practitioner give his diabetic patients effective treatment.

QUERIES AND MINOR NOTES

FLUORINE IN PUBLIC WATER SUPPLIES

To the Editor:—*There is much talk about the fluorination of public water systems. I would like to know about the toxicology of such water solutions of fluorine. 1. At what concentration will mottling of the teeth probably occur? 2. At what concentration will general systemic symptoms occur, and what would the symptoms be? 3. What concentration of fluorine in drinking water is necessary to produce death in a human?*

H. Curtis Wood, M.D., Philadelphia.

Answer.—1. Mottling of the teeth will probably occur when the concentration of sodium fluoride is 2 to 5 parts per million (2 to 5 mg. per liter). Smith and Smith (Technical Bulletin, Arizona Agriculture Experimental Station, No. 43, 1932) found that mottling did not occur when the water contained less than 2 ppm. Later, Smith, Lantz and Smith (*J. Am. Dent. A.* 22:817, 1935) found the threshold concentration may be as low as 1 part per million. Lansbury (*M. Clin. North America* 28:1428, 1944) states: "The optimum intake of fluorine is probably about 1 milligram per day or a water supply containing 0.9 parts per million. The amount of fluorine in water sufficient to cause fluorosis (mottled enamel) is 1.7 or more parts per million."

2. Lansbury also states: "Exposed workers may ingest as much as 25 mg. a day which in a year or so results in chronic fluorine poisoning. Chronic fluorine poisoning is characterized primarily by mottling of the enamel of the teeth, osteosclerosis and other miscellaneous findings.

"It is rather generally agreed that toxic symptoms appear with the ingestion of a single dose of from ¼ gram to 1 gram of sodium fluoride, the toxic dose depending on the conditions existing in the individual at the time of ingestion. The symptoms include vomiting, abdominal pains and diarrhea."

3. The fatal dose of sodium fluoride appears to be about 3 to 4 Gm. This again depends on the conditions existing at the time of ingestion. Thienes, (Clinical Toxicology, Philadelphia, Lea & Febiger, 1940, p. 167) states that 0.25 Gm. has caused nausea and 4 Gm. has caused death. Greene (*U. S. Nav. M. Bull.* **43**:551, 1944) states that the fatal dose is between 5 and 10 Gm. This agrees with Lidbeck, Hill and Beeman (*J. A. M. A.* **121**:826 [March 13] 1943), who state: "The symptoms of acute fluorine intoxication include vomiting, abdominal pain, diarrhea, painful spasms and paresis, excessive salivation, perspiration and dyspnea. Death is usually attributable to respiratory paralysis."

INFECTIOUS HEPATITIS IN A SURGEON

To the Editor:—*I recently returned from the Korean war with severe infectious hepatitis, for which I am now being treated. As a surgeon, I wonder what the possibilities are of transmitting this disease to any patient on whom I may operate in the future by such an accident as pricking my finger with a suture needle during an operation. Is it known how long this virus remains in the body after clinical recovery? How long should I wait before I begin operating again?*

Harold F. Hamit, M.D., Fort Sam Houston, Texas.

Answer.—It is difficult to provide an exact answer to this very pertinent question. The period during which viremia persists in epidemic hepatitis is unknown, but the preponderance of evidence seems to indicate that it does not extend into the convalescent period. The experience of Murphy (*Gastroenterology* 5:449 [Dec.] 1945) shows the IH virus is almost certainly present in the blood during the preicteric phase, and it may possibly persist for a short time thereafter. Beyond this point, proof of viremia is lacking.

An authority on the epidemiology of hepatitis has said: "In respect to the question of duration of viremia with virus IH infection, there are no adequate data concerning this point. The few volunteers whose sera were tested late in jaundice and several weeks afterwards proved not to have infectious sera. However, in another group with persistent mild findings for some months, vague phenomena suggesting mild hepatitis occurred in volunteers inoculated with sera, stool and liver biopsy material collected at intervals after the acute attack (*J. Clin. Investigation* 26:329 [March] 1947). From a practical viewpoint, as there is no way of setting a time limit in reference to this question, I would be inclined to advise the patient to ignore this question. One really has no data to say that he would be any less likely to be infectious six months from now than shortly after recovery from the acute attack."

A second authority, to whom this question was referred, replied as follows: "I do not know of any reliable information on the duration of viremia in infectious hepatitis. Virus has been recovered from the feces as long as two months after an acute attack, and there is reason to believe that in certain individuals it may be present for longer periods. I feel confident that in some individuals it may be present in the blood for considerable periods, but this is not documented with any degree of certainty."

In view of the very large number of persons who have had the disease and who have not been restricted in their activities because of it, it would not seem that any limitation should be imposed.

The following references are suggested: Neefe, J. R.: *M. Clin. North America* **30**:1407 (Nov.) 1946. Neefe, J. R., and Stokes, J. Jr.: *J. A. M. A.* **128**:1063 (Aug. 11) 1945. Neefe, J. R., Gellis, S. S., and Stokes, J. Jr.: *Am. J. Med.* **1**:3 (July) 1946.

CLICKING IN THE EARS

To the Editor:—*What causes continuous "clicking" in a patient's ears? The condition has been present for five years and has increased in intensity and is audible to anyone who listens. The clicking simulates clacking castanets and occurs with definite regularity. Inspection of the drums fails to reveal motility. There is no appreciable hearing loss. The eustachian tubes are patent to catheterization and inflation without apparent diminution of the clicking sounds.*

E. S. Hallinger, M.D., Camden, N. J.

Answer.—Adventitious sounds from the ear can come from rhythmic opening of the eustachian tube with an audible sound, from the blood vessels in the form of a bruit or from spasmodic contractions of the intratympanic muscles, that is, the stapedius or tensor tympani. Normally, these muscles contract only reflexly to loud sounds as a protective mechanism against overstimulation of the inner ear. In some persons, involuntary rhythmic contractions of these muscles occur analogous to the tic of the muscles around the eye or elsewhere. There is no local treatment. The use of a mild sedative might be of some help, and reassurance that this is nothing serious is helpful.

ASTHMA IN A COTTON MILL WORKER

To the Editor:—*A 55 year old man has spent 30 years working in a cotton mill. He has suffered from bronchial asthma for 25 years and for the past three years from bronchiectasis. His general health is fairly good. He weighs 190 pounds (86 Kg.). At times his asthmatic condition becomes almost intolerable. I would like information regarding treatment.*

J. L. Powe, M.D., Hartsville, S. C.

Answer.—It does not immediately follow that the conditions described result from exposure in a cotton mill. The conditions mentioned are common, apart from employment. It is well recognized that a pulmonary state termed "byssinosis" or "mill fever" occurs among cotton workers; it is variously regarded as either allergic or resulting from a specific infection. Byssinosis

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

in cotton mills is little known in the United States; it is commoner in England. In the uncertainty of the occupational origin of the asthma, it may be well to conduct suitable tests seeking specific causes. The detection of the precise cause, whether cotton, house dust, animal dander or cosmetics, may prove the salient step toward management. Otherwise the treatment for the acute episodes should be symptomatic and as for any other spasmodic asthma. Until recently treatment for bronchiectasis, with or without asthma, has been unpromising. More recently good and prolonged results have been achieved through the use of antibiotics as aerosols. Penicillin so applied irregularly has proved valuable. Streptomycin in conjunction with penicillin may be preferable. Regardless of the cause, treatment should conform to that required for any other bronchial asthma and any idiopathic bronchiectasis.

ANNUAL X-RAY EXAMINATIONS

To the Editor:—*A man in his late forties suffered from pseudo ulcer symptoms and hyperacidity in his younger years. In the last 10 years gastric analyses indicated a slight hyperacidity. Because of recurring complaints and gastric cancer in his father, he has been advised to have yearly x-ray examinations; about 14 such tests have been done. There are no changes of the skin or hair. Is it advisable to continue this procedure in order to detect any probable malignancy at an early stage?* *M.D., Illinois.*

Answer.—Walters, Gray and Priestley (Carcinoma and Other Malignant Lesions of the Stomach, Philadelphia, W. B. Saunders Company, 1942) in reviewing 2,772 operative cases of carcinoma of the stomach, noted a positive family history of malignancy in 20 per cent of the cases. Others have also reported data suggesting that heredity plays a role in carcinoma of the stomach. It is reasonable, therefore, to keep a dyspeptic, in whom a strong family history of carcinoma is elicited, under closer surveillance than average. Such persons should be reasonably protected by yearly examination, unless a significant change of symptoms occurs, in which case more frequent examinations may be necessary.

If the factors of exposure to roentgen rays, both with respect to the roentgenoscopic and the roentgenographic examinations, are kept to a minimum, or within well defined physical limits, an adequate examination of the stomach can be done at yearly intervals or oftener with perfect safety. If these exposure factors are exceeded, there is definite hazard in the excessive irradiation to which the patient is exposed, whether a single or repeated examinations are done.

HOT FLASHES AND ENDOMETRIOSIS

To the Editor:—*A 45 year old patient had a left ovarian cyst removed; her right ovary, also cystic, had been removed 10 years previously. She had multiple endometriomas of the bowel, one of which was subjected to biopsy. She is now having hot flashes. Could small doses of diethylstilbestrol be given to control these with safety, or would the drug in any amount stimulate the remaining endometriomas? The pathologist's report read "functioning" endometrioma. If diethylstilbestrol can be used, in what dosage? If it is not safe to use, what may be substituted?* *M.D., Massachusetts.*

Answer.—There is some disagreement on this subject. Formerly it was thought that any estrogen would stimulate endometriosis and make it progress. More recent studies indicate that in patients who have endometriosis and also have their ovaries or parts of them, large doses of diethylstilbestrol prevent ovulation, and it is thought by some to make the lesions regress. In patients without ovaries, endometriosis is stimulated exactly as is the endometrium, and certainly large doses, or medication given over a long period of time, will make the endometrium function wherever it is located. Most patients in past years were treated with drugs other than estrogens and in most cases were fairly comfortable. Thyroid in small doses is helpful as are any of the mild sedatives, especially used at night or during periods of undue stress. Of most importance is psychotherapy and rearrangement of the patient's habits to avoid friction of one sort or another and to relieve emotional upsets. Male sex hormones can be used, but here care must be used not to overdose and produce masculinization. In isolated instances, if the condition could be controlled in no other way, one could use small doses of diethylstilbestrol, 0.1 or 0.2 mg. daily for short periods of perhaps a week unless pain developed from one of the nodules.

PROGRESSIVE MUSCULAR DYSTROPHY

To the Editor:—*In a family of five children, the oldest boy, now 13, began to get weak in the legs at the age of 5 and finally became weak all over. He now is helpless in a wheel chair. Twins, a boy and a girl, age 5 years, have to catch things to get up when sitting down. The diagnosis is muscular dystrophy or myasthenia gravis. Physicians can offer no encouragement as to recovery. What is the cause of this disease?* *J. P. Powell, M.D., Dalhart, Texas.*

Answer.—The diagnosis here is obviously progressive muscular dystrophy, not myasthenia gravis. Unfortunately there is no known treatment of value for this condition, and it is the natural history of this condition to grow gradually worse. The only recommendation that can be offered is that this family have no more children, as this is definitely a hereditary disease.

CYCLOPROPANE SHOCK

To the Editor:—*In* The Journal *of March 3, 1951 (page 688), the answer to the inquiry on "Cyclopropane Shock" fails to mention a procedure that has been found to prevent or at least minimize this "shock." It was taught by Waters and is mentioned by Dripps in the reference given in the answer. In the last five to 15 minutes of anesthesia the patient is allowed to inhale a gaseous mixture brought increasingly closer to room air in oxygen content and temperature. This is accomplished by use of a semiclosed carbon dioxide absorption technique with a large volume flow of gas. It is most conveniently done with nitrous oxide and oxygen. Starting with a flow of 2 liters per minute each of nitrous oxide and oxygen, one gradually increases the flow of nitrous oxide to 8 liters per minute of nitrous oxide by the end of the operation. The flow of oxygen is maintained at 2 liters per minute. This procedure gradually lowers the concentration of oxygen in the inspired mixture to that in room air, allows for a slow elimination of the carbon dioxide excess built up during anesthesia with a closed carbon dioxide absorption system and decreases the temperature of the inhaled gases toward that of room air.*

J. Eugene Ruben, M.D.,
2008 Walnut Street, Philadelphia 3.

PERIODIC ATTACKS OF DIFFUSE ABDOMINAL PAIN AND DIARRHEA

To the Editor:—*In the Feb. 24, 1951 issue of* The Journal *(page 605) aid is sought in explaining recurrent attacks of abdominal pain at weekly intervals for two years. The reply gives a number of probable causes and methods of diagnosis but fails to mention the possibility of periodic abdominalgia. Your columns have been a fertile source of reports of other unusual periodic conditions which I have added to my collection; yet in not one of the replies to queries has the possibility of periodic disease been mentioned. Studies of these conditions have been published twice in* The Journal *(***136:***239 [Jan. 24] 1948,* **141:***175 [Sept. 17] 1949). Some of the more interesting queries with replies may be listed: Obscure Fever in a Child (***141:***958 [Nov. 26] 1949), Recurrent Herpes of Penis (***139:***1303 [April 30] 1949), Pain in Penis and Perineum (***143:***210 [May 13] 1950), Polyarthritis (***139:***192 [Jan. 15] 1948). The query on Familial Periodic Pain (***139:***1123 [April 16] 1949) led to the study of a family in which 23 members had life-long recurrent attacks of arthralgia, the report of which soon will appear in* The Journal. *Evidently recurrent disorders of various kinds occur often in general practice as diagnostic and therapeutic problems.*

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The Jefferson Medical College of Philadelphia,
Philadelphia.

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THE STATURE OF AMERICAN MEDICINE 1951

PRESIDENT'S ADDRESS

John W. Cline, M.D., San Francisco

The American Medical Association was founded 104 years ago, to improve medical education and elevate the standards of medical care. Throughout its history these have remained its major objectives. Except for a few war years, the Association has held an annual session, and the 100th meeting is now taking place in Atlantic City. The medical welfare of the people of our country is entrusted largely to the medical profession. Current health conditions and medical progress will be reported at this meeting and, by way of the press, radio and other media, will be transmitted to the nation.

It is a great privilege to address my colleagues here assembled, and to speak to the physicians throughout the country and to the American people, concerning the American Medical Association, its aims and objectives.

THE WORLD LOOKS TO AMERICA FOR LEADERSHIP

As history counts the years, the United States is a youthful country and American medicine also is young. Our country and the medical profession and the medical institutions which serve it have reached early maturity. Today, as never before, the world looks to us for guidance and leadership. We are the most favored among nations because the light of liberty burns brightly here. Individual freedom, opportunity and incentive are the cherished birthright of our people. Likewise, we of American medicine are most favored among doctors. We live and work in an atmosphere of individual liberty, and we have the priceless stimulus of academic and scientific freedom. We are strong because we possess the dignity of free men.

ONLY FREE MEN CAN PRESERVE OUR MEDICAL ACHIEVEMENTS

Only if we perpetuate this heritage can we continue to provide the ever improving quality of medical care which is the right of the American people. During the past 2½ years we have been compelled to fight to maintain this essential freedom. The critical struggle to remain a free profession was not of our asking, but was forced upon us by those who have lost faith in traditional American concepts, and by those who hold the welfare of the American people to be less important than their own political advantage.

We undertook to acquaint the people with the facts. They have recognized the hazard to the quality of their medical care and the danger to their freedom inherent in socialized medicine. They have spoken out clearly and emphatically against it. We are grateful for the perception and the unequivocal expression of the American people.

SERVICE TO HUMANITY IS MEDICINE'S PRIME OBJECTIVE

The "Principles of Ethics of the American Medical Association" opens with this statement: "The prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration."

To every doctor of medicine, let me say that this is a time for searching self-examination and earnest rededication to the high principles of our profession. We hold in trust the medical welfare of the nation, and to that trust we owe not only the conscientious application of our skills but tireless devotion.

To me, this hour marks the high point of my career. It is the beginning of a year of service to the health and medical welfare of our country and to my profession. It is a great honor to become President of the American Medical Association, but I assume that office without false pride. The responsibility not only to American medicine but to the American people is great. I accept it with humility—born of its importance—but face the coming year with confidence based on an intimate knowledge of my profession, and a steadfast belief in its ability and determination to render progressively greater service to our people.

THE THREAT OF CATASTROPHE—ON TWO FRONTS

These are troubled times. The dark clouds of war hang menacingly over us. We must be prepared for catastrophe, should it come. If it does, the responsibilities of medicine will increase many fold. The Association has been working closely with the Department of Defense and other agencies of government in planning for such eventuality.

Simultaneously, we face the possible loss of freedom through the destruction of our constitutional guarantees of liberty and through avarice or moral disintegration in

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Read before the One Hundredth Annual Session of the American Medical Association, Atlantic City, N. J., June 12, 1951.

high places. As citizens, regardless of our occupations, we must recognize that the right of self-determination—the right to be master of one's own destiny—has disappeared in many countries. It is threatened in others, including our own. The independence of the individual, his freedom of speech and his right to follow the trade or profession of his choice are basic issues. Only those who now enjoy such advantages can preserve them.

THE AMERICAN PEOPLE WILL RESPOND

I have a deep and abiding faith in the intelligence and integrity of the American people. They will respond as they did when their medical welfare and their medical freedom were threatened. We accepted the challenge of the would-be socializers not only because of the threat to our own professional freedom but on behalf of the welfare and freedom that is the right of all Americans. The members of the American Medical Association are more vigilantly alert than ever to their duties as citizens and will oppose socialistic schemes which would jeopardize the freedom of any segment of our society.

Primarily, we are physicians and our first obligation is to protect and preserve the health and medical welfare of the American people. A number of factors influence these important aspects of life, but medical care is one of the foremost. It is, therefore, appropriate at this time for American medicine to render a report of its stewardship.

AMERICAN MEDICINE ASSUMES WORLD LEADERSHIP

American medicine has gone steadily forward. Some of the once great medical systems of the Old World have faltered and declined under stultifying government control while American medicine has forged into a position of world leadership.

The greatness of any nation can be measured, in part, by the health of its people. The United States *is* great and has developed the *foremost* medical care in the world. You are all beneficiaries, but you are contributors to this system as well.

American medicine could not have attained its present position without the assistance and cooperation of our educational institutions, our scientists, our colleagues in public health, our hospitals, nurses, dentists, labor and management, and all the American people, working with initiative and independence toward the same goal. Together we have made great progress in the fight against death and disease, until today we are the healthiest large nation in the world.

TWENTY ADDED YEARS OF LIFE

Since the turn of the century, almost 20 years have been added to the life span of the American people. The general death rate during the same period has been cut almost in half. This represents the saving of more than one million American lives every year. Our population has doubled since 1900, but the population 65 years of age and older has quadrupled. This results from saving the lives of infants, children, and young adults.

An American mother now has better than 999 chances out of 1,000 to come through childbirth safely. This is the best record in our history and, on a comparable basis, the best in the world. In the 10 years between 1940 and 1950, infant mortality was cut 38%. At the present rate of progress the record of the United States should be shortly, if not already, the best in the world. A baby born today has more than 20% greater chance of reaching maturity and almost 45% greater chance of achieving the age of 50 than had a baby born in 1900. At the same time, he faces only about half the hazard of becoming an orphan before reaching maturity.

THE CHOICE IS ACHIEVEMENT VERSUS SOCIALISTIC EXPERIMENT

I believe the mothers of America will consider that these achievements far outweigh the empty promises of those who urge a system of government-controlled medical care. We cannot afford to sacrifice this record upon the altar of socialistic experiment.

A recent survey conducted by the World Medical Association among the professions of 40 countries, disclosed that the United States was the country preferred for postgraduate study and specialty training. This country has the finest medical schools, the most modern and efficient hospitals, the best trained and most competent medical profession and by far the highest standard of medical care the world has ever known.

I should like to underscore the next statement. The American people are entitled to this assurance: *No health crisis or medical emergency exists in this country.* We are proud of the part the American Medical Association has played in this record of progress.

A. M. A. GROWS AS A GREAT PUBLIC SERVICE ORGANIZATION

As our country has grown and changed from a rural to a mixed industrial and agricultural economy, the problems of medical care have multiplied. The American Medical Association has grown and developed correspondingly during the same period. Few Americans know of the extensive activities of the Association devoted to their welfare. Few realize the degree to which it is a great public service organization. The nine-story headquarters building in Chicago houses more than 800 employees, working full time on projects which are directly or indirectly in the public interest.

Early in the present century, medical education in this country was in a deplorable condition. "Diploma mills" and second and third rate schools flourished. The American Medical Association, in cooperation with others, established sound educational standards and began regular inspection of medical schools. Today, all the medical schools in this country are of high quality and are turning out splendid physicians. This is one of the main reasons why medical science has progressed so rapidly in the United States during the past 30 years.

A MEDICAL F. B. I. PROTECTS THE PEOPLE

For the past 50 years, the Association has worked for high standards in the manufacture of drugs and appliances. The American Medical Association itself tests hundreds of drugs and appliances every year. Its seal of approval upon such products assures the profession and the laity, alike, of high quality.

The Association operates what might be described as a medical F. B. I., which investigates and exposes quack doctors and fake remedies. Every year many worthless medicines and treatments appear upon the scene. The American Medical Association cooperates with law-enforcing agencies throughout the country in securing withdrawal of such remedies and in exposing quack practitioners.

A. M. A. FUNDS FOR MEDICAL RESEARCH AND EDUCATION

On the other hand, the Association consistently encourages and assists worth while research. Every year the Association spends several hundred thousand dollars to aid research. It was a pioneer in health education, and spends additional hundreds of thousands of dollars annually giving factual health information to the American people through newspapers, pamphlets, radio, television, and motion pictures.

The American Medical Association has promoted the development of sound voluntary health insurance to ease the financial burden of serious illness. As a result of this effort, in conjunction with hospital groups, insurance companies, labor, industry and others, there has been tremendous growth of this type of coverage. Today, more than 72 million people have some type of voluntary protection against the financial shock of illness. We shall continue our efforts to expand and improve prepaid medical care, and confidently look forward to the enrollment of the vast majority of our people in voluntary plans within the next few years.

PRIVATE ENTERPRISE IS SOLVING THE ECONOMIC PROBLEM OF ILLNESS

I can make this flat declaration: *The problem of insurance against the economic hazards of illness is well on its way to orderly solution within the existing framework of private enterprise.*

One of the most important tasks of the Association is to keep its members informed of the latest developments in medical science. To this end, it holds two large meetings each year. The physicians learn by hearing papers presented by leaders of the profession, viewing films and television portrayals of surgical and diagnostic procedures and by wandering through miles of medical exhibits. One physician recently described such a meeting as "a complete postgraduate education under one roof."

To inform the physician who cannot attend these meetings and to eliminate delay in presenting new discoveries made between meetings, the Association regularly publishes ten scientific journals and several books. The weekly JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is the most widely read and most highly esteemed of all medical periodicals.

What do these activities mean to you, the public? These services of the American Medical Association keep *your* doctor up to date through his years of practice so that he may render the best medical care to you and to your family.

A. M. A. WORKS IN ALL FIELDS OF HEALTH

The Association is concerned with the health problems of *all* segments of society. It studies industrial hazards, cooperates with labor and management to eliminate them, and holds an annual conference on industrial health. It does similar work in the field of rural health, where it works with those organizations interested in rural problems. It has helped design plans for placing doctors in rural areas where they were needed.

The Association is currently studying means of improving services for those in the lower income brackets. It is one of the co-sponsors of the Commission on Chronic Illness, which studies diseases of long duration, particularly those of the aged. One council is devoted entirely to the problems of civil defense and the armed forces. Another bureau compiles and analyzes medical statistics. It recently completed the only national study of blood banks which has ever been made. The nation is now in a position to know the requirements for blood and the sources of supply.

AVAILABILITY OF GOOD MEDICAL CARE CONSTANTLY INCREASING

In medical problems that are best solved at the local level, the Association serves in a coordinating and advisory capacity to state and county societies. It urges programs such as that to make medical care available at any hour by the establishment of night and emergency call systems in all communities.

Another project is the nationwide development of grievance committees, to hear and act upon complaints which patients may have concerning any aspect of medical service. Thirty-six states now have such committees.

There are many other public service projects of the American Medical Association, but this brief discussion perhaps will demonstrate the substantial contribution which organized medicine *has made* and *is making* to America's health. Problems still exist, and no one is more aware of them than the medical profession. Certain rural areas and some government services need more physicians, but there is no real shortage of physicians. The United States has more doctors than any country and except for Israel, where an abnormal situation exists, a higher ratio to the population than any nation.

COOPERATION SOLVING PROBLEM OF DOCTOR DISTRIBUTION

Medical care is less available in certain areas than in others. However, the American Medical Association and the state and county societies are assisting such communities to obtain more doctors. They endeavor to bring together the doctors seeking places to practice and the localities in need of physicians.

The problem is one of distribution rather than shortage. Significant improvement has taken place and is continuing, as a result of the cooperation of the branches of medical organization with the local communities in need.

Looking toward the future, the American Medical Association favors training of more physicians. Our medical schools have expanded their enrollments. At this time, there are more students preparing for careers in medicine than at any time in our history, and by 1960 we will be producing at least 30% more physicians than we did in 1950. This tremendous growth will be accomplished without sacrifice in the quality of education. To fail to maintain our present high standards would be ruinous to the future of medical care.

A. M. A. STIMULATES PRIVATE SUPPORT FOR MEDICAL SCHOOLS

Some of our medical schools, however, are in financial distress. This is a matter of deep concern to the American Medical Association. In appreciation of this situation, the Association has donated a half million dollars in an effort to stimulate realistic private support for medical education. Other societies have contributed lesser amounts. On May 16 last, the Foundation created by the Association was merged with the National Fund for Medical Education headed by Mr. Herbert Hoover. I urge every physician to contribute promptly and generously.

In addition, we advocate one-time federal grants for necessary remodelling and construction. The Association believes that medical education can be financed adequately by these means and without danger of federal control. We recognize the great service to medical advancement rendered by our full-time basic science and clinical teachers, and seek to improve their opportunities.

AMERICAN MEDICINE DEDICATED TO HIGH PURPOSES

In a changing world, nothing is static and new problems will arise. Physicians do not issue careless statements concerning the health of an individual or a nation. I make no irresponsible, utopian promises, but I assure you that we are attacking the problems confronting us with the same determination that has characterized our battle against disease.

I am proud to serve as President of the American Medical Association. It is a truly American institution, democratic in organization and dedicated to high purposes. It has one hundred forty odd thousand members—the vast majority of American physicians engaged in the care of the sick. The greatness of American medicine is inseparable from the over-all greatness of America. It has sprung from the same freedom which has made possible the attainment of high standards in all fields of endeavor.

PHYSICIANS, AS CITIZENS, PLEDGE FIGHT FOR AMERICAN FREEDOMS

Democracy and democratic institutions are on trial. It is an historical fact that men must control themselves and their destinies or be controlled by others. The philosophy of statism is foreign to the American concept of life.

American medicine eagerly assumes its responsibility to provide medical care of ever higher standard for the American people and to bring that care progressively within easier reach of those who require it. At the same time, the physicians of this country pledge themselves to dynamic activity as citizens to preserve the freedom which is requisite to the fulfilment of their medical obligations to the American people.

TREATMENT OF RHUS DERMATITIS

Colonel Robert J. Hoagland, Captain Paul W. Myers, United States Air Force,
and
Captain Henry C. Cosand, Medical Corps, United States Army

Numerous treatments for Rhus dermatitis are mentioned in textbooks of dermatology, and a writer on the subject is likely to be surprised by interest shown by the lay press and by many laymen volunteering cures involving various herbs or chemicals. The many remedies advocated by physicians and the laity testify both to unscientific thinking and to difficulties involved in controlled investigations.

Treatment of 70 patients with ivy dermatitis with tripelennamine (pyribenzamine®) hydrochloride cream and calamine lotion, in the summer of 1949, led to the conclusions that further trials with tripelennamine locally were desirable and that a local anesthetic such as dibucaine (nupercainal®) would be preferable to calamine lotion for comparison with agents believed to have curative effects.[1] In addition, investigation of other recommended remedies might result in finding a treatment that could be shown to accelerate recovery from Rhus dermatitis.

Investigation and evaluation of a proposed treatment for ivy dermatitis is made unusually difficult by individual variations in types of lesions resulting from exposure. For example, some patients have chiefly papular lesions; others have blebs, vesicles and oozing lesions; still others have a cellulitis type of reaction. A few patients complain of intolerable pruritus, but some have little or no itching. The final extent of involvement and ultimate severity of the disease cannot be estimated accurately when the patient is first seen, because new lesions often continue to appear for several days after exposure. Furthermore, trauma produced by scratching during sleep and secondary infections may unpredictably delay recovery. For these reasons, comparisons of different modes of treatment in different patients are either valueless or misleading. Comparisons of new treatments with treatments used on previous occasions by the same patient are invalid because the degree of dermatitis in previous attacks is not known to the investigator, the susceptibility of patients is variable, and patients' memories are unreliable. Successive use of different medications on the same lesion cannot lead to valid conclusions because the first medicament is usually applied while the disease is in ascendancy, whereas later treatments merely coincide with spontaneous recovery. Finally, unless patients are carefully observed, one cannot be certain whether the remedies prescribed are being properly used and, of greatest importance, whether subjective improvement is reflected in rapid healing.

From the United States Army Hospital, United States Military Academy, West Point, N. Y.

The dibucaine ointment (nupercainal®) and tripelennamine (*pyribenzamine*) cream used were furnished by Ciba Pharmaceutical Products, Inc., Summit, N. Y. Tannic acid solution, 5 per cent, containing chlorothen, 2 per cent, and phenol, 0.4 per cent (rhulitol® containing chlorothen) was supplied by Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y., and a compound of hydrogen peroxide, acetanilid not over 0.017 per cent, acetic acid, benzethonium chloride 0.75 per cent and propylparahydroxybenzoate 0.02 per cent (neoxyn®) was furnished by William H. Rorer, Inc., Philadelphia, Penn.

[1] Hoagland, R., and Myers, P.: Treatment of Rhus Dermatitis, U. S. Armed Forces M. J. (May) 1950.

A review of the literature reveals inconsistent statements, unproved opinions, and uncritical conclusions regarding the prophylaxis, treatment and duration of Rhus dermatitis. For example, Alderson,[2] Bivings [3] and Caulfeild [4] recommended the use, orally and intramuscularly, of extracts of Rhus toxicodendron in treatment, but they used no control cases, whereas Howell,[5] using control patients, showed that there was no significant difference in the rate of healing between groups receiving and not receiving injections. He concluded that the fundamental basis for treatment with intramuscular injections of poison ivy extract was unsound and that this treatment was contraindicated. Sharlit and Newman [6] gave 74 patients injections of an extract of poison ivy and gave eight control subjects injections of absolute alcohol. They concluded that their extract was curative in cases of Rhus dermatitis, but their criterion of effective therapy was cessation of symptoms and of further spread of inflammatory reactions, not acceleration of recovery in comparison with that in controls.

Our observations, over five years, indicate that differences in statements regarding the usual duration of Rhus dermatitis are explained by differences in offending plants and in intensity and durations of exposure, individual differences in hypersensitivity and reaction and in the extent and locations of lesions. The importance of intensity and duration of exposure was dramatically demonstrated by Molitch and Poliakoff,[7] who stated that patients inoculated with poison ivy extract remained free of the disease despite playing in an environment containing poison ivy, but incurred severe dermatitis when they held plants for 30 seconds.

Witherspoon [8] advocated the use of a cream containing 1 per cent menthol or phenol and 10 per cent sodium perborate but used no controls. Of 70 patients, 90 per cent were clinically cured in five to seven days, but in none was the disease severe enough to warrant hospitalization. Results of treatment of hospitalized patients with severe involvement were not stated, although such patients received similar treatment. Blumenthal and Rosenberg [9] reported relief from pruritus in 12 of 14 patients given 50 mg. of diphenhydramine hydrochloride orally every four to six hours, but they did not describe the severity of the disease. Tweedall and O'Connor [10] gave 100 mg. of tripelennamine hydrochloride orally one hour before applying an extract of Rhus toxicodendron to five persons who had strongly positive patch tests for this substance, and 50 mg. at the time of application as well as every four hours for 24 hours. They observed only moderate relief from burning and itching and no prevention of dermatitis. Furthermore, in 1946 we used diphenhydramine orally for Rhus dermatitis, in doses identical to those used by Blumenthal and Rosenberg, without subjective or objective improvement. Philip [11] treated 11 patients having Rhus dermatitis with diphenhydramine cream and reported disappearance of weeping and itching within 36 hours in eight patients; however, three patients had symptoms for eight days. Only two controls were reported. Sulzberger, Baer and Levin [12] used tripelennamine ointment locally for various skin disorders, but not for Rhus dermatitis, and reported that it produced an eczematous allergic reaction in two of 90 patients. Strauss [13] confirmed this observation and showed that tripelennamine, not the vehicle for the drug, produced an acute, oozing, edematous dermatitis. Four of 70 patients studied by us in 1949 also experienced irritation from tripelennamine. Ethyl chloride spray was used on 101 patients by Robinson,[14] who reported good results but used no controls.

TECHNIC OF STUDY

Whenever practicable, areas of Rhus dermatitis of about equal duration and intensity, on the same patient, were chosen for treatment with different medicaments and were examined daily. When areas of equal intensity could not be found, a patch of dermatitis was divided with an indelible line into equally involved areas. The halves of the area were treated differently. The following remedies were used: 2 per cent tripelennamine cream, dibucaine ointment and a 5 per cent tannic acid solution plus chlorobutanol 1 per cent, phenol 0.4 per cent, camphor ammonium alum and isopropyl alcohol 39.5 per cent (rhulitol®) with chlorothen citrate (tagathen®), a compound of acetic acid, hydrogen peroxide, benzethonium chloride 0.75 per cent, propylparahydroxybenzoate 0.02 per cent, water and aromatics (neoxyn®), 2 per cent zinc sulfate solution and ethyl chloride spray. A total of 92 patients, with 217 involved areas, were treated. The table gives the details of treatment.

Details of Treatment of 217 Areas Affected by Rhus Dermatitis

Medications Used	Number of Areas Treated	Degree of Severity of Dermatitis		
		Mild	Medium	Severe
Tripelennamine cream............	47	24	13	10
Dibucaine ointment...............	37	21	11	
Tannic acid with chlorothen......	52	21	22	
Propylparahydroxybenzoate	43	14	22	7
Zinc sulfate solution.............	32	15	11	6
Ethyl chloride spray..............	6	5	1	0

RESULTS

Twenty-seven patients with paired lesions of about equal severity were treated with tripelennamine cream and dibucaine ointment. In 15 instances the results were about the same. In 10 instances tripelennamine cream, and in two instances dibucaine ointment, appeared to accelerate healing slightly. In this group, as well as in all of the cases outlined below, the use of no medication was followed by dramatically swift recovery.

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[2] Alderson, H. E.: Treatment of Poison Oak Dermatitis, California & West. Med. **23**: 982-985 (Aug.) 1925.

[3] Bivings, F. L.: Successful Desensitization and Treatment of Poison Ivy and Poison Oak, Arch. Dermat. & Syph. **9**: 602-606 (May) 1924.

[4] Caulfeild, A. H. W.: Specific Diagnosis and Treatment of Poison Ivy (Rhus toxicodendron) Dermatitis, J. Allergy **9**: 535-544 (Sept.) 1938.

[5] Howell, J. B.: Evaluation of Intramuscular Injections of Specific Extracts in Treatment of Acute Poison Ivy Dermatitis, Ann. Allergy **5**: 219-223 (May-June) 1947.

[6] Sharlit, H., and Newman, B. A.: Specific Therapy in Rhus Dermatitis, New York J. Med. **37**: 61-63 (Jan. 1) 1937.

[7] Molitch, M., and Poliakoff, S.: Prevention of Dermatitis Venenata Due to Poison Ivy in Children, Arch. Dermat. & Syph. **33**: 725-728 (April) 1936.

[8] Witherspoon, F. G.: New Method for Ambulatory Treatment of Poison Ivy Dermatitis, J. Tennessee M. A. **40**: 1-2 (Jan.) 1947.

[9] Blumenthal, L. S., and Rosenberg, M. H.: Benadryl for Ivy Poisoning, M. Ann. District of Columbia **16**: 86-87 (Feb.) 1947.

[10] Tweedall, D. C., and O'Connor, W. B.: Pyribenzamine in Therapy and Prophylaxis of Rhus Dermatitis, J. Invest. Dermat. **10**: 301-302 (May) 1948.

[11] Philip, A. J.: Treatment of Itching Dermatoses with an Ointment Containing Diphenhydramine (Benadryl), New York J. Med. **49**: 1179-1181 (May 15) 1949.

[12] Sulzberger, M. B.; Baer, R. L., and Levin, H. G.: Local Therapy with Pyribenzamine Hydrochloride, J. Invest. Dermat. **10**: 41-42 (Feb.) 1948.

[13] Strauss, M. J.: Eczematous Contact-Type Allergy to Pyribenzamine, J. Invest. Dermat. **11**: 155 (Sept.) 1948.

[14] Robinson, M. M.: Treatment of Dermatitis Venenata (Rhus) by Cyrotherapy, J. Invest. Dermat. **8**: 239-243 (May) 1947.

Twenty-five patients received tripelennamine cream and tannic acid, 5 per cent, with chlorothen, on paired lesions. In 21 instances the results were about the same, and of the remaining four two appeared to respond better to tripelennamine, whereas the other two appeared to respond better to tannic acid.

Twelve patients received tannic acid with chlorothen and a 2 per cent zinc sulfate solution on paired lesions. Half of these had approximately equal effects from each; tannic acid appeared to be superior to zinc sulfate in four instances, and the opposite result was obtained in 2 instances.

Propylparahydroxybenzoate and 2 per cent zinc sulfate solution were used on eight patients with equally involved areas; there was no discernible difference in results.

Tripelennamine cream and propylparahydroxybenzoate were used in 2 paired cases with no apparent difference in results.

Tannic acid with chlorothen appeared to be slightly superior to propylparahydroxybenzoate in all of five patients who received these medicaments on paired lesions.

Five patients receiving tannic acid with chlorothen and dibucaine ointment appeared to derive about equal benefit from both treatments.

Only two patients received propylparahydroxybenzoate and dibucaine ointment on equally involved areas; one appeared to benefit more from the former and one from the latter treatment.

Six patients had lesions treated with ethyl chloride spray, while similarly involved areas were treated with dibucaine ointment. No patients derived benefit from the spray, and three spray-treated areas were irritated and healed slowly.

Evaluation of the effect of these medicines on itching was difficult. In general, it could be said that all were antipruritic and that propylparahydroxybenzoate, ethyl chloride, and zinc sulfate were the least effectual. Tripelennamine cream, dibucaine ointment and tannic acid compound with chlorothen were approximately equally effective as antipruritics.

COMMENT

Rhus toxicodendron dermatitis resembles a burn in that the skin is exposed to a noxious agent, and, as a result, a relatively unalterable sequence of changes manifesting reaction and repair is set in motion. No locally applied medications used by us—including tripelennamine cream, anesthetic creams, zinc sulfate solution, tannic acid solution with chlorothen, propylparahydroxybenzoate and ethyl chloride spray—dramatically accelerated healing. Patients often speak of remedies acting promptly to effect recovery, "drying up the rash almost overnight." We could not demonstrate such effects. The antihistamine medications appeared to speed healing slightly in some instances, but in over half of the cases their effect was no better than that of agents that had no antihistamine action.

Itching and burning pain are the two chief subjective complaints. They are, however, not uniformly present. When these symptoms occurred, they were usually alleviated, at least partially, by any one of the medications used, except ethyl chloride spray, which was practically worthless; a 2 per cent zinc sulfate solution was of little value. A 5 per cent tannic acid compound with an antihistamine (rhulitol® with tagathen®), 2 per cent tripelennamine cream, dibucaine ointment, and the hydrogen peroxide, benzethonium, acetic acid compound, propylparahydroxybenzoate, were most effectual in lessening symptoms.

Application of moist warm compresses accelerated recovery when used on cellulitis-like lesions characterized by swelling, local heat and redness. Patients with severe dermatitis may have such inflammatory lesions without secondary infection. The latter are effectively treated with systemic use of penicillin or aureomycin, and aureomycin ointment applied locally, not available at the time of this investigation, merits trial.

SUMMARY AND CONCLUSIONS

1. Ninety-two patients with 217 areas of Rhus dermatitis were treated with: 2 per cent tripelennamine pyribenzamine hydrochloride cream, dibucaine ointment, a 5 per cent tannic acid solution (Rhulitol®) with chlorothen (tagathen®), a compound of acetic acid, hydrogen peroxide, benzethonium chloride and propylparahydroxybenzoate, 2 per cent zinc sulfate solution and ethyl chloride spray.

2. Accurate evaluation of proposed treatments for Rhus dermatitis is difficult, because many variables are involved—for example, individual susceptibility and reaction; extent and duration of exposure to plants; secondary trauma, and duration of dermatitis before treatment.

3. Comparisons between different medications or different individuals are invalid. Only if approximately equally affected and equally old areas of dermatitis on the same patient are treated differently and simultaneously can reliable comparisons and conclusions be made. Ninety-two patients had paired areas of dermatitis, equivalent in duration and intensity of dermatitis, treated concurrently with two medications.

4. The speed of recovery from Rhus dermatitis is not dramatically influenced by any agent applied to the skin's surface, but it may be accelerated (at least in cellulitis-like lesions) by application of warm moist compresses, and, in some patients, to a slight degree by locally applied antihistamines.

5. Treatments recommended in Rhus dermatitis are creams or solutions containing local anesthetics, perhaps wtih antihistamines, and warm, moist compresses for cellulitis-like or oozing lesions.

The Physician's Features.—No matter how hard he [the patient] stares at your countenance, he should never be able to read his fate in it. It should be cheerful as long as there is hope, and serene in its gravity when nothing is left but resignation. The face of a physician, like that of a diplomatist, should be impenetrable. Nature is a benevolent old hypocrite; she cheats the sick and the dying with illusions better than any anodynes. If there are cogent reasons why a patient should be undeceived, do it deliberately and advisedly, but do not betray your apprehensions through your tell-tale features.—Oliver Wendell Holmes, Medical Essays, Boston, Houghton, Mifflin & Company 1883, p. 387.

DRAMATIC RESPIRATORY SYMPTOMS INDUCED BY SUDDEN WITHDRAWAL OF ACTH

Robert W. Keeton, M.D., William R. Best, M.D., Ford K. Hick, M.D., M. M. Montgomery, M.D.
and
Max Samter, M.D., Chicago

Untoward side effects are major obstacles to the prolonged administration of pituitary adrenocorticotropic hormone (ACTH). Although most of these effects are due to excessive release of corticoids, there is increasing evidence that prolonged administration of the hormone has a profound effect on both the anterior pituitary and the adrenal cortex. In most instances, functional deficiency of the glands remains on a subclinical level. It seems, therefore, justifiable to report two cases, both of respiratory impairment, in which withdrawal of the drug caused severe clinical manifestations.

REPORT OF CASES

Case 1.—The first patient, E. F., a 48 year old white male, has had a progressive, severe pulmonary fibrosis of unknown etiology for four years. In 1949, six months prior to administration of the hormone, he developed cor pulmonale with mild cardiac decompensation. Prior to administration of the drug he was dyspneic, had frequent coughing spells, complained of marked nasal congestion and was unable to engage in minimal activities. Twenty mg. of pituitary adrenocorticotropic hormone administered three times daily, resulted in objective improvement within 48 hours—his nasal passages cleared; his breathing improved noticeably; his cough stopped; he experienced a pronounced feeling of well-being and was soon able to resume moderate activities.

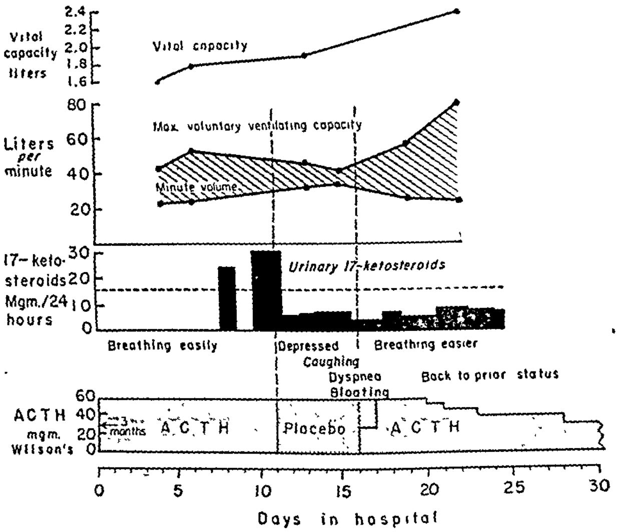

Fig. 1.—Hospital course of patient E. F., who has pulmonary fibrosis.

The hormone was discontinued after two months of therapy, and within 36 hours dyspnea and episodes of coughing returned. The patient became depressed, and then hysterical. His condition deteriorated so rapidly that hormone therapy was resumed, with rapid improvement in his physical and mental status.

In order to study the mechanism of this reaction, he was hospitalized one month later at the Research and Educational Hospitals. He was continued on 20 mg. of the drug, three times daily, for 11 days. The urinary excretion of 17-ketosteroids suggested an adequate adrenocortical response (fig. 1). On the twelfth day, placebo injections were substituted for the hormone without the patient's knowledge. Forty-eight hours later a marked mental depression became evident, a slight cough was present and breathing became more difficult. Dyspnea and coughing increased during the next two days. He was not cyanotic. His pulse rate was 124, his respirations were 36 per minute and his temperature was 100.2 F. Treatment with the drug was resumed, and again he recovered within 48 hours. After recovery there was a gradual decrease in minute volume, accompanied by an increase in vital capacity and maximum voluntary ventilating capacity beyond the level established prior to the administration of the placebo. Since then the dosage of the drug has been gradually reduced, and he is at present receiving 30 mg. in divided doses.

Case 2.—The second patient, E. U., a 58 year old man, has had chronic bronchitis with secondary emphysema for 10 years. Dyspnea has become progressively more severe during the past eight years. Prior to the administration of pituitary adrenocorticotropic hormone, minimal efforts, such as shaving or walking a few yards, produced marked shortness of breath. He was admitted to the Research and Educational Hospitals, and, after a suitable control period, was given 40 to 60 mg. of the drug, first in the hospital, then at home, over a 45 day period. Improvement was slight, in spite of the increased excretion of 17-ketosteroids in the urine (fig. 2). Improvement did not seem to warrant further administration of the hormone. Seventy-two hours after sudden and complete withdrawal of the drug, he became weaker and very dyspneic. His condition became rapidly worse and from the fourth to the eighth day he required continuous oxygen. At this time he was readmitted to the hospital in a critical condition. He was very weak, severely dyspneic, coughed frequently and his face had an ashen color. His temperature was 101.4 F., his pulse rate was 126 per minute and his respirations were 36 per minute. His blood pressure was 152/110. A chest roentgenogram showed no change. Electrolyte studies on admission were normal. Streptomycin and aureomycin were started immediately, without apparent effect. Twenty-four hours after the patient's admission to the hospital, the drug was resumed without his knowledge, and within another 24 hours his clinical condition improved noticeably. Three days later he felt about the same as he had prior to withdrawal of the hormone. 17-Ketosteroids determinations, though not obtained during the drug-free interval, did not rise

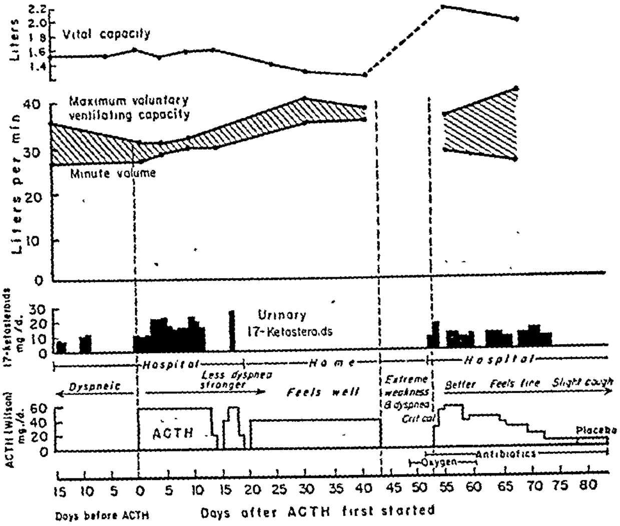

Fig. 2.—Hospital course of patient E. U., who has emphysema.

From the Department of Medicine, University of Illinois College of Medicine.

Read before the twenty-third Annual Meeting of the Central Society for Clinical Research, Chicago, November 3, 1950.

in proportion to clinical improvement during the second course of therapy. The drug was very gradually withdrawn over an 18 day period without incident.

COMMENTS

The histories of these two patients raise two major questions: First, what is the mechanism responsible for the dramatic collapse of the patient on withdrawal of pituitary adrenocorticotropic hormone? Second, what factors are responsible for the almost immediate and rapid improvement after resumption of therapy?

Treatment with corticotropin produces a hypofunction of the pituitary gland with decreased secretion of endogenous pituitary adrenocorticotropic hormone. When corticotropin is suddenly withdrawn, this deficiency of the endogenous hormone results in a secondary hypoadrenalism. On the other hand, if pituitary adrenocorticotropic hormone is gradually withdrawn, the glands adapt themselves to their pretreatment capacity. Thorn has called attention to the so-called adrenal atrophy during and following cortisone therapy. His statement—presented during an informal discussion at the First Conference on the Adrenal Cortex, of the Josiah Macy, Jr., Foundation—reads:

> You treat for two weeks with 100 mg. of Cortisone. You then stop treatment. For two to five days you will fail to get an adequate adrenal cortical response to the ACTH test. In other words, the adrenal has atrophied and it won't be brought back very easily by the ACTH during that period. I don't know just how long the period lasts. We have had cases that we are trying to follow. You can see after you stop the Cortisone treatment that you are going to have the widest possible swing, because within two or three days you are going to go from essentially a Cushing's down almost into an Addison's range of adrenal secretion. You just hope that nothing happens to the patient during the week after you stop your Cortisone therapy.

One must realize, however, that Thorn's statement is based essentially on treatment with cortisone, not with pituitary adrenocorticotropic hormone.

In our patients, the rapid recovery after resumption of pituitary adrenocorticotropic hormone therapy leads us to believe that we are dealing with a pituitary rather than an adrenal cortex deficiency. Patients with bronchial asthma respond spectacularly to the hormone but frequently relapse on its withdrawal. One might reason that the pulmonary tissue is particularly vulnerable to sudden deficiencies of glucocorticoids; on the other hand, defenses against infections are profoundly modified during and after the administration of pituitary adrenocorticotropic hormone. It seems that interference with these defenses might be responsible for some of the features in the serious reactions which we have observed. This problem needs further investigation. We are presenting this clinical report because we feel that the possibility of producing serious clinical withdrawal symptoms after prolonged treatment with the hormone should be brought to the attention of clinicians using it.

SUMMARY

Two patients with respiratory impairment showed dramatic respiratory symptoms induced by sudden withdrawal of pituitary adrenocorticotropic hormone. Both responded to readministration of the hormone. Subsequent gradual withdrawal of the hormone was accomplished without incident in one patient. The other patient is still receiving the hormone in therapy. The clinical histories which we have presented suggest that withdrawal of the drug in patients with pulmonary disease should be carried out with great caution.

1853 W. Polk Street.

HEMORRHAGIC PERICARDITIS IN ACUTE MYOCARDIAL INFARCTION TREATED WITH BISHYDROXYCOUMARIN

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and
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The reports of the Committee for the Evaluation of Anticoagulants in the Treatment of Coronary Thrombosis with Myocardial Infarction, American Heart Association, and several other reports [1] have indicated the efficacy of anticoagulant therapy in acute myocardial infarction. The drug of choice at the present time is bishydroxycoumarin (dicumarol®). Its toxicity has been studied in animals,[2] and the hemorrhagic complications that occur clinically have been reported. It is the purpose of this communication to call attention to an unusual and serious hemorrhagic complication heretofore unreported and to emphasize the clinical signs that make possible early recognition of this complication.

REPORT OF CASES

Case 1.—This was the first admission to the hospital of a 42 year old white man, who entered with severe substernal pain of one hour's duration. He had had no previous history of exertional dyspnea, chest pain, peripheral edema, diabetes or hypertension. On the morning of admission, while driving his car, he suddenly experienced severe squeezing pain over the precordium and sternum, which radiated into the left shoulder and down the left arm. This was accompanied with profuse sweating, weakness and nausea. The pain persisted until the time of admission.

Examination revealed an apprehensive man complaining of severe pain in the chest. There was no engorgement of the neck veins; slight cyanosis was evident. The heart was not enlarged, the rhythm was regular, the heart sounds were distant and the first apical sound was split. There were no murmurs, thrills or friction rub. The blood pressure was 95/65 in both arms. There were fine moist rales at base of each lung. The liver and spleen were not palpable, and there was no peripheral edema. The white blood cell count was 11,000 per cubic millimeter. The corrected sedimentation rate was 0.9 mm. per minute (Rourke-Ernstene

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From the Medical Research Department, Yamins Research Laboratory, Beth Israel Hospital and the Department of Medicine, Harvard Medical School.

method,[3] normal 0.08 to 0.35 mm. per minute). The urine was normal. The electrocardiogram showed changes characteristic of an acute posterior myocardial infarct.

The initial treatment consisted of bed rest and use of oxygen and morphine. Bishydroxycoumarin, 300 mg., was administered on the first day immediately after the determination of the prothrombin time. The drug was administered daily thereafter in doses calculated to maintain the prothrombin time between 30 and 35 seconds (5 to 10 per cent prothrombic activity according to the Rosenfield and Tuft method) [4] (table1).

During the first six hospital days the temperature ranged between 101 and 102 F. and then gradually fell, reaching normal on the eleventh day (fig. 1). Basal rales and slight cyanosis persisted despite continuous administration of oxygen. On the third hospital day a pericardial friction rub was first noted. The rub was heard at all examinations over the entire precordial area, from the third to the twelfth hospital day; after this period it was no longer audible. On the fourth hospital day moderate icterus was noted and the liver was palpated 2 fingerbreadths below the right costal margin. The urine gave a positive test for bile.

At the end of the first week, the patient was free of pain; the lungs were clear and cyanosis was absent. By the ninth hospital day jaundice was no longer detectable and the urine was free of bile. The blood pressure during this period was 100-110/60-70.

The temperature rose to 101 F. on the thirteenth hospital day. The following day, the prothrombin time was 45 seconds, and bishydroxycoumarin was not given. On the morning of the fifteenth day, rales at base of each lung and slight cyanosis were again noted and the prothrombin time was 40 seconds. A few hours later, anterior chest pain recurred and lasted approximately one-half hour; relief was then obtained with meperidine hydrochloride. Shortly after the onset of pain, there was a fall in the blood pressure to 90/80. This level was maintained until early morning of the sixteenth hospital day, when there was more profound vascular collapse. It was noted that all superficial veins were distended. The prothrombin time was 67 seconds, although bishydroxycoumarin had not been given the previous two days. There were no overt hemorrhagic manifestations. The patient was given 100 mg. of menadione sodium bisulfite and 200 cc. of stored plasma intravenously during the course of the next few hours, after which the prothrombin time was 31 seconds. The patient failed to respond to therapy and died at 7 p. m. on the sixteenth hospital day.

Postmortem Examination.—The pericardium was found to be firmly adherent over the greater part of the left ventricle, except toward the base and over the septum anteriorly. It was also adherent over the posterior surface of the right ventricle, extending to the apex, over the auricles and to its reflexion at the great vessels. Six hundred cubic centimeters of bloody fluid were present in the free pericardial space. The hematocrit value of this fluid was 45 per cent. The addition of either 1 or 10 units of thrombin to 1 milliliter of the pericardial fluid caused no clot formation, thus indicating the absence of fibrinogen. No prothrombic activity could be demonstrated in the pericardial fluid by the Rosenfield and Tuft modification of Quick's one stage method.[4] After the bloody fluid was removed, there remained a thick, heavy, fibrinous, partially organized exudate. In the adherent areas, the pericardium stripped with difficulty, leaving a partially organized blood clot on the epicardium.

TABLE 1.—*Maintenance of Prothrombin Time Between 30 and 35 Seconds*

Hospital Day	Prothrombin Time, Seconds	Prothrombic Activity, Per Cent	Bishydroxycoumarin Dose, Mg.
1	13.7	96	300
2	17.4	49	200
3	33.7	5.0	50
4	36.9	4.4	0
5	42.0	3.8	0
6	31.1	5.9	50
7	36.4	4.6	0
8	31.4	5.8	50
9	25.9	8.6	100
10	30.9	6.0	50
11	28.9	7.0	100
12	25.6	8.7	150
13	30.3	6.2	100
14	44.8	3.3	0
15	39.5	4.0	0
16	67	2.3	0
	30.7	6.1	...

The left ventricular myocardium, except for the anterior portion toward the base, appeared to be involved in a recent infarction characterized by blue-black discoloration and thinning of the myocardium. The cut surfaces revealed necrosis and gelatinous degeneration. Both papillary muscles were involved. The posterior portion of the right ventricle, the apex and the entire length of the septum posteriorly were also involved in this process. The papillary muscles in the right ventricle appeared normal. No perforations, tears or ruptures of the myocardium or coronary vessels were found after careful examination, and leakage of the injection mass into the myocardium was not observed.

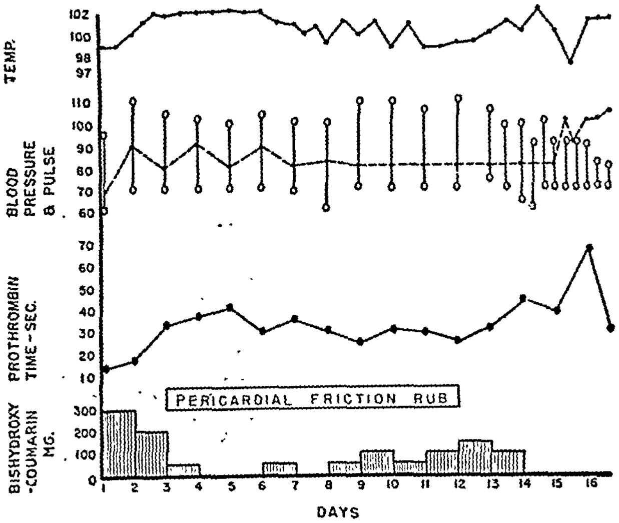

Fig. 1.—Clinical course in case 1.

Injection and dissection of the coronary arteries according to the Schlesinger technique [5] revealed atheromatous plaques and slight narrowing along the entire length of the main left anterior descending artery. The left circumflex artery was essentially normal. Atheromatous plaques in the main right coronary artery caused moderate narrowing of the vessel up to an occlusion 5 cm. from the mouth of the vessel. The occlusion was caused by an organized adherent thrombus 0.9 cm. in length, surrounded by an atheromatous abscess. Just distal to the occlusion there was a tail-like, nonadherent, nonoccluding thrombus, the base of which was partially organized and attached to the

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1. (*a*) Wright, I. S.; Marple, C. D., and Beck, D. F.: Anticoagulant Therapy of Coronary Thrombosis with Myocardial Infarction, J. A. M. A. **138**: 1074 (Dec. 11) 1948. (*b*) Wright, I. S.: Experiences with Dicumarol (3,3′-Methylenebis [4-Hydroxycoumarin]) in the Treatment of Coronary and Myocardial Infarction, Am. Heart. J. **32**: 20 (July) 1946. (*c*) Glueck, H. I.; Strauss, V.; Pearson, J. S., and McGuire, J.: Combined Heparin-Dicumarol Therapy of Myocardial Infarction: Clinical and Pathologic Study, Am. Heart J. **35**: 269 (Feb.) 1948. (*d*) Parker, R. L., and Barker, N. L.: The Effect of Anticoagulants on the Incidence of Thrombo-Embolic Complications in Acute Myocardial Infarction, Proc. Staff Meet., Mayo Clin. **23**: 367 (Aug. 4) 1948. (*e*) McCall, M.: Dicumarol Therapy in Acute Coronary Occlusion with Myocardial Infarction, Am. J. M. Sc. **215**: 612 (June) 1948. (*f*) Reich, C., and Eisenmenger, W.: Further Studies on the Anticoagulants, Am. J. M. Sc. **215**: 617 (June) 1948.

2. (*a*) Rose, C. L.; Harris, P. N., and Chen, K. K.: Toxicity of 3,3′-Methylenebis (4-Hydroxycoumarin), Proc. Soc. Exper. Biol. & Med. **50**: 228 (June) 1942. (*b*) Bollman, J. L., and Preston, F. W.: The Effect of Experimental Administration of Dicumarin, J. A. M. A. **120**: 1021 (Nov. 28) 1942. (*c*) Richards, R. K., and Cortell, R.: Studies on Anticoagulant (Dicumarol), Proc. Soc. Exper. Biol. & Med. **50**: 237 (June) 1942. (*d*) Bingham, J. B.; Meyer, O. O., and Pohle, F. J.: Studies on the Hemorrhagic Agent 3,3′-Methylenebis (4-Hydroxycoumarin): I. Its Effect on the Prothrombin and Coagulation Time of Dogs and Humans, Am. J. M. Sc. **202**: 563 (Oct.) 1941. (*e*) Blumgart, H. L.; Freedberg, A. S.; Zoll, P. M.; Lewis, H. D., and Wessler, S.: The Effect of Dicumarol on the Heart in Experimental Acute Coronary Occlusion, Am. Heart J. **36**: 13 (July) 1948.

3. Rourke, M. D., and Ernstene, A. C.: A Method for Correcting the Erythrocyte Sedimentation Rate for Variations in the Cell Volume Percentage of Blood, J. Clin. Invest. **8**: 545 (June) 1930.

4. Rosenfield, R. E., and Tuft, H. S.: Estimation of Prothrombin Level from Prothrombin Time, Am. J. Clin. Path. **17**: 405 (May) 1947.

5. Schlesinger, M. J.: An Injection Plus Dissection Study of Coronary Artery Occlusions and Anastomoses, Am. Heart J. **15**: 528 (May) 1938.

previously described thrombus. All vessels distal to this point were injected by the mass from the left coronary artery. Microscopic sections revealed both a healing and a fresh infarct in the areas of gross change noted above; the latter appeared to be of about 24 hours' duration.

On gross examination, the liver appeared slightly firmer than normal and there was congestion of the central veins. Microscopic examination revealed early acute central necrosis. Gross and microscopic examination of the kidneys and other organs revealed no abnormalities.

Case 2.—A 66 year old white woman was admitted to the hospital after an episode of chest pain. There was a 25 year history of moderately severe bronchial asthma and at least a 10 year history of hypertension; she had had albuminuria six years prior to the attack. Forty-eight hours before admission, substernal and left chest pain occurred suddenly. The pain was cutting in character and nonradiating. It lasted approximately two hours and was associated with sweating and vomiting. It was relieved by morphine and thereafter did not recur.

On admission, examination revealed an obese white woman who was moderately dyspneic and slightly cyanotic. Respirations were wheezing. The blood pressure was 180/100. The heart was moderately enlarged to the left. The rhythm was regular, with an occasional premature beat. The heart sounds were masked by the wheezing respiration. The anteroposterior diameter of the thorax was increased. There were loud ronchi and wheezes throughout both lung fields. The liver was felt 2 fingerbreadths below the right costal margin but was not tender. There was no icterus or edema. The white blood cell count was 43,400 (polymorphonuclear cells 79 per cent, band forms 6 per cent, lymphocytes 6 per cent and monocytes 8 per cent) and remained elevated during the entire period of hospitalization. There were no abnormal cells in the peripheral blood smear. The urine contained albumin (4 +) and 8 to 10 white blood cells per high power field in an uncatheterized specimen. The specific gravity ranged from 1.010 to 1.020. The electrocardiogram was characteristic of posterior myocardial infarction and complete auriculoventricular block.

Table 2.—*Prothrombic Response to Therapy*

Hospital Day	Prothrombin Time, Seconds	Prothrombic Activity, Per Cent	Bishydroxycoumarin Dose, Mg.	Menadione Sodium Bisulfite Dose, Mg.
1	..	....	300	..
2	20	55.0	0	..
3	43	4.4	0	..
4	134	2.0	0	4.8
5	21	40.0	50	..
6	70	3.2	0	4.8
7	62	3.7	0	..
8	50	4.0	0	..
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Therapy consisted of bed rest and administration of oxygen, codeine, penicillin, potassium iodide and small doses of epinephrine (adrenalin®) in oil. Bishydroxycoumarin, 300 mg., was administered on the evening of admission. Within 36 hours of this single dose, the plasma prothrombic activity had fallen to 4 per cent as determined by the Rosenfield and Tuft technique[4] and, except for a single determination of 40 per cent on the fifth hospital day, remained below 5 per cent for the duration of hospitalization, despite the administration of only one additional dose of 50 mg. of bishydroxycoumarin on the fifth hospital day (table 2). Whether the finding of 40 per cent prothrombic activity on the fifth hospital day was a laboratory error, a response to the small dose of menadione sodium bisulfite (4.8 mg.) given on the previous day, or a representation of the wide fluctuations in prothrombic activity not infrequently observed, cannot be stated.

The temperature fell from a level of 101 F. to normal within 24 hours and remained there. The pulse rate ranged between 45 and 60, as the complete auriculoventricular block persisted. There was evidence of moderate renal insufficiency, with nonprotein nitrogen values ranging from 50 to 60 mg. per 100 cc., and was 54 mg. seven hours before the patient's death.

The asthma was easily controlled, and only small doses of epinephrine in oil were necessary (0.3 cc. of a 1: 500 suspension) on the first, second and fifth hospital days. The heart sounds, which on the first day were obscured by the respiratory wheezes, were of poor quality. At no time was a pericardial friction rub heard. On the eighth hospital day the patient became lethargic and there was a marked decrease in urinary output. These symptoms persisted despite intravenous administration of fluids. On the eleventh hospital day the patient complained of severe periumbilical pain, but there were no abnormal abdominal signs. The white blood cell count, which had gradually fallen from a level of 43,400 on admission to 13,000 on the tenth hospital day, rose to 33,800. Peripheral vascular collapse occurred shortly after the onset of pain. Within a few hours the blood pressure, previously maintained at a level of 130/80, was unobtainable. The patient failed to respond to therapy and died on the eleventh hospital day.

Postmortem Examination.—The pericardial cavity was almost completely obliterated by numerous dense fibrous adhesions. The pericardium was separated with great difficulty, and in several areas over the anterior surface the epicardial and parietal layers were so densely adherent that they were removed together from the myocardium. In a few areas posteriorly, where free pericardial space still persisted, there was an accumulation of 50 to 75 cc. of bloody fluid, and when this was removed a partially organized blood clot on the epicardium was noted. Careful examination revealed no evidence of rupture, tear or perforation of the myocardium or coronary vessels.

The heart weighed 470 Gm. On gross examination there was evidence of an extensive myocardial infarct involving the posterior wall of the left ventricle, the posterior portion of the interventricular septum and the posterior papillary muscle. Microscopic examination revealed massive infarction involving the posterior wall of the left and right ventricles, the interventricular septum, the posterior papillary muscle and the left atrium. The right ventricular extension of the infarct was recent and appeared to be less than 24 hours old. In this area of recent infarction several small veins contained fibrin thrombi. The epicardium was covered by a heavy layer of fibrin, which in some areas was overlaid with masses of red blood cells. The inner portion of the epicardium showed organization of the fibrinous exudate. With the exception of the uterus, no other area of hemorrhage was observed. The uterine cavity contained 2 to 3 cc. of bloody fluid. The endometrium was hemorrhagic. The serosal surface of the uterus was normal.

The pancreas appeared normal on gross examination, but the microscopic sections revealed evidence of acute and chronic pancreatitis and acute focal necrosis.

The kidneys were somewhat smaller than average. The right kidney weighed 110 Gm. and the left 130 Gm. There was some thinning of the cortex. Microscopic examination revealed that the renal substance was essentially preserved. There were moderate sclerosis of the interlobular vessel and some focal areas of scarring and tubular atrophy.

The remainder of the examination revealed no significant abnormalities.

The third patient with myocardial infarction and complicating pericarditis herein reported was admitted to the Beth Israel Hospital for the first time shortly after the first patient died. Bishydroxycoumarin therapy was instituted upon admission. The clinical features so closely resembled those of the first case that the diagnosis of hemorrhagic pericarditis appeared likely, although final proof is lacking, since the patient recovered and a pericardial tap was not done.

Case 3.—A 48 year old white man was hospitalized for recurrent chest pain of four days' duration. There was no history of rheumatic fever, hypertension or diabetes. For four years prior to admission he had noted mild anterior chest pain on moderate exertion. Four days prior to admission he experienced pain between the shoulder blades; it had come on suddenly and was aggravated by deep inspiration. Later that day, severe epigastric and anterior chest pain developed and was associated with a feeling of weakness in both arms and legs. Three days prior to admission, the temperature was 103 F. The heart sounds were poor, the patient was cyanotic, and signs consistent with consolidation at the base of the left lung were noted. An electrocardiogram showed changes characteristic of an extensive anterior myocardial infarct (fig. 2).

Examination on his admission to the hospital two days later revealed an acutely ill man with slight cyanosis; the respiratory rate was 25, temperature 103 F., pulse rate 100, and regular, and blood pressure 100/80. There was no engorgement of the neck veins. The heart was enlarged to the anterior axillary line, and a loud to and fro friction rub masked the heart sounds. There was bronchial breathing at the base of the left lung and diminished breath sounds and moist rales at the base of the right lung. The abdominal examination was noncontributory, and there was no peripheral edema. The white blood cell count was 16,000 per cubic millimeter. The sedimentation rate was 2.2 mm. per minute (Rourke-Ernstene method [3]). The urine was normal. The nonprotein nitrogen was 40 mg. per 100 cc. Therapy consisted of bed rest, liquid diet, fluids up to 2,500 cc., meperidine hydrochloride, as necessary, for pain, oxygen and bishydroxycoumarin. The prothrombic activity was maintained generally between 10 to 20 per cent of normal as estimated by the Rosenfield and Tuft technique [4] (prothrombin time between 20 and 30 seconds) (table 3).

During the first 12 hospital days, the patient showed clinical improvement. The temperature fell slowly, reaching normal by the seventh day, and the pulse rate during this period fell from 100 to 70. The chest pain necessitated frequent medication at first but was not troublesome after 72 hours. The cyanosis disappeared within 48 hours, and the use of oxygen was discontinued on the fourth hospital day. The blood pressure was maintained at 100-110/70-80. The friction rub disappeared after the first 24 hours but returned on the fifth day and persisted with varying intensity during and following the first period of clinical improvement.

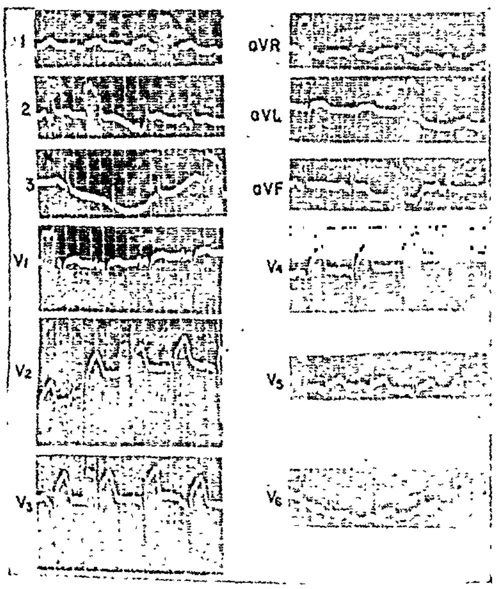

Fig. 2 (case 3).—Electrocardiogram taken after the patient's admission to the hospital, showing changes characteristic of anterior myocardial infarct.

On the afternoon of the thirteenth hospital day, there was a recurrence of anterior chest pain with cyanosis, weakness and profuse sweating. There was no change in the blood pressure, but there was a rise in the heart rate and the friction rub was louder than was previously noted. It was felt that the recurrence and persistence of the friction rub might be secondary to oozing of blood from the inflamed pericardial surfaces and that the sudden deterioration in the patient's condition conceivably was due to profuse bleeding into the pericardial sac. The use of bishydroxycoumarin was discontinued, and 72 mg. of menadione sodium bisulfite was given intravenously on the thirteenth and fourteenth days (table 3). On the fifteenth day the temperature rose to 102 F., the pulse rate to 110 and the respiration rate to 25. Repeated electrocardiograms showed no evidence of fresh infarction. A chest film revealed an increase in heart size when compared with a film taken shortly after admission. These findings were consistent with, but not clearly diagnostic of, pericardial effusion. However, inasmuch as there was no evidence of cardiac tamponade, pericardial tap was not done. The patient improved dramatically coincident with return of prothrombic activity toward normal on the seventeenth hospital day. By the nineteenth hospital day the temperature and pulse had returned to normal and the friction rub had disappeared. Thereafter the clinical course was uneventful. The patient was discharged on the forty-second hospital day.

Table 3.—*Prothrombic Activity at 10 to 20 Per Cent of Normal*

Hospital Day	Prothrombin Time, Seconds	Prothrombic Activity, Per Cent	Bishydroxy-coumarin Dose, Mg.	Menadione Sodium Bisulfite Dose, Mg.
1	..	....	...	..
2	21	50	300	..
3	23	25	0	..
4	20	60	200	..
5	28	13	0	..
6	24.1	20.5	100	..
7	17.5	100	100	..
8	24	19	100	..
9	30	5.5	0	..
10	25	16.5	100	..
11	21	44	100	..
12	26	15	50	..
13	28	12.5	50	72
14	26.8	13.5	0	72
15	23.2	22	0	..
16	23	22	0	..
17	18.8	69	0	..

COMMENT

A review of the literature reveals that all reported cases of hemopericardium complicating myocardial infarction were due to rupture of the myocardium or of a coronary vessel. A review of the autopsy records at the Beth Israel Hospital of 160 cases of acute myocardial infarction without bishydroxycoumarin therapy similarly showed the occurrence of hemopericardium only when myocardial rupture was present. Although petechiae and injection of the epicardium were not infrequently noted and in 19 cases slightly blood-tinged pericardial fluid was found, frank gross hemorrhage into the pericardial cavity without rupture was noted only in the bishydroxycoumarin-treated patients. The conclusion appears warranted that in these cases bishydroxycoumarin was at least partly responsible for the hemopericardium.

Bishydroxycoumarin has two recognized physiological effects: 1. It interferes with the formation of prothrombin by the liver, resulting in a decreased concentration of prothrombin in the blood [6] and thereby causing a decrease in the production of the serum prothrombin conversion accelerator reported by Alexander and his associates [7] and a prolongation of the clotting time, as measured in siliconized equipment.[8] 2. In moderate to large doses it causes dilation of capillaries, small arteries and veins.[9] Except in the event of massive doses, which cause death within a few hours without any previous demonstrable effect upon prothrombin activity or the previously described thrombus. All vessels distal to this point were injected by the mass from the left coronary artery. Microscopic sections revealed both a healing and a fresh infarct in the areas of gross change noted above; the latter appeared to be of about 24 hours' duration.

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[6] Richards and Cortell.[2c] Bingham and others.[2d] Link, K. P.: The Anticoagulant from Spoiled Sweet Clover Hay, in Harvey Lectures, 1943-44, Lancaster, Pa., Science Press Printing Company, 1944, vol. 39, p. 162.

[7] Alexander, B.; de Vries, A., and Goldstein, R.: A Factor in Serum Which Accelerates the Conversion of Prothrombin to Thrombin: II. Its Evolution with Special Reference to the Influence of Conditions Which Affect Blood Coagulation, Blood 4: 739 (June) 1949.

[8] Margulies, H., and Barker, N. W.: The Coagulation Time of Blood in Silicone Tubes in Patients Receiving Dicumarol, Am. J. M. Sc. **218**: 52 (July) 1949.

[9] Rose and others.[2a] Richards and Cortell.[2c] Bingham and others.[2d] Dale, D. U., and Jaques, L. B.: The Prevention of Experimental Thrombosis by Dicumarin, Canad. M. A. J. 46: 546 (June) 1942.

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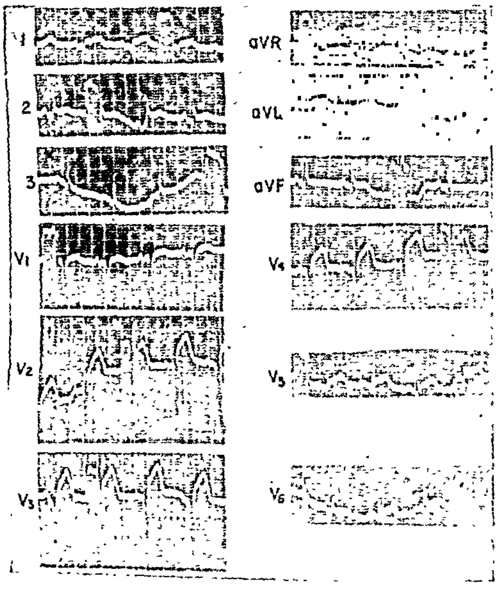

Fig. 2 (case 3).—Electrocardiogram taken after the patient's admission to the hospital, showing changes characteristic of anterior myocardial infarct.

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COMMENT

A review of the literature reveals that all reported cases of hemopericardium complicating myocardial infarction were due to rupture of the myocardium or of a coronary vessel. A review of the autopsy records at the Beth Israel Hospital of 160 cases of acute myocardial infarction without bishydroxycoumarin therapy similarly showed the occurrence of hemopericardium only when myocardial rupture was present. Although petechiae and injection of the epicardium were not infrequently noted and in 19 cases slightly blood-tinged pericardial fluid was found, frank gross hemorrhage into the pericardial cavity without rupture was noted only in the bishydroxycoumarin-treated patients. The conclusion appears warranted that in these cases bishydroxycoumarin was at least partly responsible for the hemopericardium.

Bishydroxycoumarin has two recognized physiological effects: 1. It interferes with the formation of prothrombin by the liver, resulting in a decreased concentration of prothrombin in the blood [6] and thereby causing a decrease in the production of the serum prothrombin conversion accelerator reported by Alexander and his associates [7] and a prolongation of the clotting time, as measured in siliconized equipment.[8] 2. In moderate to large doses it causes dilation of capillaries, small arteries and veins.[9] Except in the event of massive doses, which cause death within a few hours without any previous demonstrable effect upon prothrombin activity or the appearance of hemorrhagic phenomena,[2c,d] all the toxic signs and symptoms and the parenchymatous changes that have been reported are secondary to hemorrhage resulting from the hypoprothrombinemia and vasodilatation. In animal experiments [10] and in cases of bishydroxycoumarin poisoning,[11] when the prothrombin is markedly reduced, extensive hemorrhage has been observed in every tissue and body cavity, including the pericardial space. Pericardial hemorrhage, however, has been noted only in the experiments reported by Quick,[12] and in the case reported by Duff and Shull.[13] In this connection the studies of Blumgart and others [2e] on the effect of bishydroxycoumarin on experimentally produced myocardial infarction in dogs is noteworthy. In these animals with myocardial infarction and surgically traumatized pericardium, marked hypoprothrombinemia was produced by the administration of this drug. Although other hemorrhagic phenomena occurred, there were no instances of bleeding into the pericardial sac. Quick [12] found that in rabbits, when the prothrombin time was less than 19 seconds (normal prothrombin time is 6 seconds), the animal's blood could prevent cardiac bleeding from a heart puncture. When the prothrombin time was 24 seconds or more, fatal hemopericardium invariably occurred. In the case of bishydroxycoumarin poisoning, with extensive hemorrhagic phenomena, reported by Duff and Shull,[11d] 40 cc. of serosanguineous fluid was present in the pericardial sac; there were petechiae in the right ventricle and right atrium, and a diffuse hematoma was present in the atrial wall.

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[6] Richards and Cortell.[2c] Bingham and others.[2d] Link, K. P.: The Anticoagulant from Spoiled Sweet Clover Hay, in Harvey Lectures, 1943-44, Lancaster, Pa., Science Press Printing Company, 1944, vol. 39, p. 162.

[7] Alexander, B.; de Vries, A., and Goldstein, R.: A Factor in Serum Which Accelerates the Conversion of Prothrombin to Thrombin: II. Its Evolution with Special Reference to the Influence of Conditions Which Affect Blood Coagulation, Blood 4:739 (June) 1949.

[8] Margulies, H., and Barker, N. W.: The Coagulation Time of Blood in Silicone Tubes in Patients Receiving Dicumarol, Am. J. M. Sc. **218**: 52 (July) 1949.

[9] Rose and others.[2a] Richards and Cortell.[2c] *Bingham and others.*[2d] Dale, D. U., and Jaques, L. B.: The Prevention of Experimental Thrombosis by Dicumarin. Canad. M. A. J. **46**: 546 (June) 1942.

The reported complications of anticoagulant therapy in myocardial infarction when the prothrombin is kept at the "optimum" level have been limited to relatively mild hemorrhagic phenomena: epistaxis, hemoptysis, guaiac-positive stools, hematuria, purpura, hematomas and hemarthrosis.[14] It is noteworthy that no instances of hemopericardium in bishydroxycoumarin-treated patients with acute infarction have been reported. It is probable, however, that hemopericardium has been observed in such cases but that its significance has not been appreciated. In the presence of fibrinous pericarditis, a common complication of acute myocardial infarction, the constantly moving, vascular, granulating serous surface would appear to provide conditions that predispose to bleeding when severe hypoprothrombinemia and vasodilatation are produced by bishydroxycoumarin. However, the extensive adhesive pericarditis found in cases 1 and 2 suggests that the organization of the fibrin deposited from blood oozing into the pericardial space may result in widespread pericardial adhesions. This would tend to inhibit extensive hemorrhage and tamponade in most cases and may account for the infrequency of extensive hemopericardium.

The literature referred to [15] clearly indicates that the clotting defect produced by bishydroxycoumarin may itself result in pericardial hemorrhage even in the absence of antecedent pericarditis. Nevertheless, it should be noted that vascular collapse, icterus, congestive heart failure and renal insufficiency were present in our cases. Since these conditions predispose to hemorrhage, the possibility that they enhanced the tendency toward bleeding cannot be excluded. This consideration must not be overlooked when one is deciding whether or not a patient with acute myocardial infarction is to receive bishydroxycoumarin and what the dosage schedule is to be.

The unusual persistence of a pericardial friction rub in the proved case of hemorrhagic pericarditis (case 1) and in the one suspected case (case 3) suggests that a continual oozing of a small amount of blood from the involved pericardial surfaces may have occurred for days. This opinion is confirmed by the postmortem findings in the first case. The sudden change in the clinical course, as characterized by chest pain, fever, tachycardia, cyanosis, vascular collapse and venous distention in the presence of a persistent pericardial friction rub, suggests profuse hemorrhage into the pericardial space. This possibility was not suspected in the first case, and cardiac tamponade proved to be the immediate cause of death. The similar clinical course in the third case suggested pericardial hemorrhage, and the withdrawal of bishydroxycoumarin and the administration of menadione sodium bisulfite were followed by recovery. In the second case a friction rub was not heard and hemorrhagic pericarditis was not suspected. The occurrence of abdominal pain and shock were probably due either to the extension of the infarction or to the pancreatitis. The hemopericardium was not extensive enough to cause any cardiac embarrassment. The free pericardial space was almost obliterated.

When a pericardial friction rub is not audible, it may be impossible to make a diagnosis of pericardial hemorrhage, unless pericardial effusion, which is rare in uncomplicated acute myocardial infarction, can be demonstrated.

In case 1, the pronounced rise of the prothrombin time after the use of bishydroxycoumarin had been discontinued occurred when the patient was in shock and may have been due to the impairment of liver function secondary to congestion and shock.[16] The unusual response to a small dose of bishydroxycoumarin in the second case was probably related to impaired renal function. It has been shown experimentally that a decrease in renal function results in enhancement and prolongation of the hypoprothrombic effect of bishydroxycoumarin.[16]

It should be noted that the prothrombin times and prothrombic activities in the third case were well within the recommended therapeutic ranges when the suspected bleeding occurred. In a previous communication by Alexander, de Vries and one of us (R. G.)[17] the methods of prothrombin determination and their clinical significance have been critically evaluated. It was pointed out that wide fluctuations of prothrombin concentration may occur (cases 2 and 3) in patients receiving bishydroxycoumarin.

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[10] Rose and others.[2a] Bollman and Preston.[2b] Richards and Cortell.[2c] Bingham and others.[2d] Blumgart and others.[2e]

[11] (*a*) Shleven, E. L., and Lederer, M.: Uncontrollable Hemorrhage After Dicumarol Therapy with Autopsy Findings, Ann. Int. Med. **21**: 337 (Aug.) 1944. (*b*) Thorsen, G.: Dicumarol Poisoning with Relapse: Report of a Case, Lancet **2**: 420 (Sept. 20) 1947. (*c*) Draper, A. J., Jr.: Dicumarol Poisoning, J. A. M. A. **136**: 171 (Jan. 17) 1948. (*d*) Duff, I. F., and Shull, W. H.: Fatal Hemorrhage in Dicumarol Poisoning with Report of Necropsy, J. A. M. A. **139**: 762 (March 19) 1949.

[12] Quick, A. J.; Honorato, R., and Stefanini, M.: The Value and the Limitation of the Coagulation Time in the Study of the Hemorrhagic Diseases, Blood **3**: 1120 (Oct.) 1945.

[13] (*a*) Duff and Shull.[11d] (*b*) Since the preparation of this manuscript two more cases of hemopericardium occurring in bishydroxycoumarin-treated cases of myocardial infarction have been reported by Nichol, E. S.: The Risk of Hemorrhage in Anticoagulant Therapy, Ann. West. Med. & Surg. **4**: 71 (Feb.) 1950.

[14] Wright and others.[1a] Wright.[1b] Glueck and others.[1c] Parker and Barker.[1d] McCall.[1e]

[15] Duff and Shull.[11d] Quick and others.[12]

[16] Richards, R. K., and Steggerda, F. R.: Dicumarol in Rats with Impaired Liver and Kidney Function, Proc. Soc. Exper. Biol. & Med. **52**: 358 (April) 1943.

The discontinuance of bishydroxycoumarin therapy and the intravenous administration of large amounts of vitamin K have been shown to have little effect upon the prothrombin level for at least 10 to 12 hours[18] and may not result in normal levels for several days. (More recently, vitamin K_1 oxide has been demonstrated to be much more effective than other preparations in bishydroxycoumarin-produced hypoprothrombinemia.[19] Although such treatment may suffice when there is only slight oozing into the pericardial sac, when more profuse bleeding occurs transfusion of blood or plasma is indicated to correct the deficiency in prothrombin. Transfusions have a temporary effect and should be repeated until the normal mechanism for the production of prothrombin, stimulated by the administration of vitamin K, can maintain satisfactory levels of prothrombin. The course of treatment can best be guided by frequent determinations of the prothrombin time. If cardiac tamponade develops, a pericardial tap should be done. It is important that the prothrombic activity of the blood be kept close to normal levels after such a procedure in order to avoid bleeding secondary to the procedure.

SUMMARY AND CONCLUSIONS

Hemopericardium has been observed during the course of bishydroxycoumarin therapy for acute myocardial infarction. Two cases of proved and one of suspected hemopericardium are reported.[20] Cardiac tamponade was the immediate cause of death in one of the patients.

The diagnosis of hemorrhagic pericarditis should be suspected in the presence of (1) a prolonged and persistent or recurrent friction rub, (2) recurrence of cardiac pain, (3) vascular collapse accompanied with distended neck veins and (4) demonstration of pericardial effusion. The continuation of bishydroxycoumarin therapy in case of myocardial infarction with persistent pericardial friction rub may be hazardous.

Bishydroxycoumarin, by causing severe depression of prothrombic activity and vascular dilatation, predisposes one to hemorrhage, of which a potent source is found in the constantly moving granulating serous surfaces of the inflamed pericardium. Furthermore, multiple factors that interfere with hemostasis are commonly present in acute myocardial infarction, and these must be evaluated before bishydroxycoumarin is administered or the dosage schedule is decided on. The necessity for rigid control of bishydroxycoumarin therapy is emphasized.

Hemorrhage into the pericardium in bishydroxycoumarin-treated patients with acute myocardial infarction is an emergency, and every physician using the drug should be aware of the possibility of this serious complication.

The treatment of bishydroxycoumarin poisoning should include withdrawal of bishydroxycoumarin and should include the intravenous injection of vitamin K (preferably vitamin K_1 oxide) and the repeated transfusion of blood or plasma until the prothrombin time reaches normal levels and remains there. If cardiac tamponade develops, a pericardial tap should be done.

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[17] Alexander, A.; de Vries, A., and Goldstein, R.: Prothrombin: A Critique of Methods for Its Determination and Their Clinical Significance, New England J. Med. **240**: 403 (March 17) 1949.

[18] James, D. F.; Bennett, I. L.; Scheinberg, P., and Butler, J. J.: Studies on Dicumarol in Human Beings: Its Neutralization by Vitamin K_1 Oxide, Menadione Bisulfite, Synkayvite and Blood, Am. J. Med. **4**: 455 (March) 1948.

[19] (*a*) Miller, R.; Harvey, W. P., and Finch, C. A.: Antagonism of Dicumarol by Vitamin K Preparations, New England J. Med. **242**: 211 (Feb. 9) 1950. (*b*) Davis, W. A.; Frank, H. A.; Hurwitz, A., and Seligman, A. M.: Intravenous Use of Vitamin K_1 Oxide, Arch. Surg. **46**: 296 (Feb.) 1943.

[20] Since the preparation of this manuscript, two more instances of hemorrhagic pericarditis occurring in bishydroxycoumarin-treated patients with acute myocardial infarction have been found at postmortem examination. There was no evidence of rupture of the myocardium or of any coronary vessels in either case.

HISTOPLASMOSIS, TUBERCULOSIS AND COCCIDIOIDOMYCOSIS

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The present concepts of histoplasmosis have resulted, in large part, from a more critical examination of disease processes that were formerly considered to be almost exclusively of tuberculous origin. Prior to 1945 the infrequent reports of cases of histoplasmosis suggested little association with tuberculosis aside from the pathological impression that each appeared, usually, as a chronic granulomatous infection. By 1945, however, evidence had accumulated for the existence of pulmonary calcifications demonstrated roentgenologically in a large number of persons, insensitive to tuberculin, who lived in middle western and contiguous states.[1] Furthermore, to add emphasis to the problem of such calcifications in this area, an analysis of draft board chest roentgenograms, reported in 1943 showed that the Middle West was the region of highest prevalence of this condition in the United States.[2] Such a geographic distribution did not correspond at all well with tuberculosis mortality.[3] Following the observations of Tager and Liebow,[4] and at the suggestion of Smith,[5] Christie and Peterson[6] and Palmer[7] were readily able to show that most patients with pulmonary calcification of this puzzling origin were not only sensitive to the antigen histoplasmin but also had spent most of their lives in middle western states.

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The postulate was thus implied that histoplasmosis was not a disease that was limited to a rare and fatal form but that it might be widespread and include, in addition to its fatal form, a range of mild pulmonary infections that would frequently result in lung calcifications. A parallelism with tuberculosis was thus established.

The infection that is defined as histoplasmosis is caused by the fungus Histoplasma capsulatum. The organism was proved a cultivable fungus by DeMonbreun in 1934.[8] A specific antigen was extracted from broth filtrates of cultures, in 1941, by two groups of investigators,[9] and the material became employed as a skin-testing antigen in a manner similar to that in which tuberculin is used. This antigen, histoplasmin, has proved invaluable in delineating the Lower Mississippi Basin as the endemic area for histoplasmosis and in suggesting other endemic areas outside the United States. Histoplasmin has also been of value in distinguishing between tuberculous and histoplasmotic infections in patients with pulmonary calcification or infiltrates.

EPIDEMIOLOGY

The area endemic for the disease in the United States has been studied by many interested groups during the past five years. Although the mode of infection is still far from clear, there are important epidemiological aspects of histoplasmosis that are known today, aspects which will probably mark out the direction of future, more conclusive work.

As a result of histoplasmin skin-testing surveys,[10] a degree of infection is indicated to exist among the residents of the Mississippi Valley that frequently exceeds 50 per cent. In fact, in certain counties of Illinois, young adult women and men have shown rates of sensitivity above 95 per cent.[11] The Mississippi Basin regionalization of histoplasmosis is distinctly unlike the geographic distribution of tuberculosis, as illustrated by mortality rates [3] or tuberculin sensitivity rates.[12] Such a type of regionalization as that which exists for histoplasmosis corresponds exceedingly well, however, with the geographic distribution of pulmonary calcifications,[13] as previously indicated.

A high rate of infection has been attained within this endemic area usually by the time of adolescence. Infants have shown negligible rates of sensitivity, but during the first decade of life substantial rates have been found of approximately 40 to 60 per cent,[14] depending on the local area. Women have been found, in general, to have slightly lower rates of infection than do men.[15] Negroes have been found to have approximately the same infection rate [12a] or a rate slightly lower [10c] than that for whites. This racial similarity of the histoplasmin rates is significantly unlike the great racial difference in tuberculin sensitivity rates and suggests that economic factors are not so important in the acquisition of a H. capsulatum infection. Also, unlike tuberculosis, the histoplasmosis infection rate for urban residents is not higher than that for rural dwellers. Indeed, an indication of higher rural rates has been reported for Ohio.[10d]

The practical point of whether histoplasmosis is communicable from person to person is not settled. However, the indications at present are that this disease is not generally so transmitted. Family studies of Kansas City residents showed only slight indication that, if one child of a family were infected, his siblings would be more likely than not to be infected.[16] Such evidence against interpersonal infection stands in sharp contrast to the results of comparable studies of tuberculosis by Opie, McPhedran and their associates.[17] Evidence that families are not usually attacked as units by the H. capsulatum fungus indicates also that the dissemination of histoplasmosis has little in common with the mode of spread of several other classes of disease that usually attack family units or small groups: sputum-disseminated diseases other than tuberculosis, the milk-borne, meat-borne and the usual pet-borne and rodent-borne diseases. During recent months a fatality from histoplasmosis was reported in Decatur, Ill.,[18] that occurred in a 5 month old identical twin girl. Though kept in the same crib with the ill sister during the first two weeks of a four week illness, the surviving twin girl had no detectable illness, did not react to histoplasmin and is well today. However, this episode cannot be considered convincing, by virtue of the absence of any open lesion on the body surface of the sick baby and little or no pulmonary involvement.

Additional indications against interpersonal infection by the H. capsulatum fungus exist in the geographic distribution of infected populations. If family units formed foci for infection, as they have been shown to do for tuberculosis,[17] there would be expected a more spotty and less regionalized endemic area. For tuberculosis a more spotty geographic distribution does exist, though

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1. (*a*) Lumsden, L. L., and Dearing, W. P.: Epidemiological Studies of Tuberculosis, Am. J. Pub. Health **30**: 219, 1940. (*b*) Olson, B. J.; Wright, W. H., and Nolan, M. O.: An Epidemiological Study of Calcified Pulmonary Lesions in an Ohio County, Pub. Health Rep. **56**: 2105, 1941. (*c*) Gass, R. S.; Harrison, E. F.; Puffer, R. R.; Stewart, H. C., and Williams, W. C.: Pulmonary Calcification and Tuberculin Sensitivity Among Children in Williamson County, Tennessee, Am. Rev. Tuberc. **47**: 379, 1943. (*d*) Dillon, A.; Gass, R. S.; Hubbard, W. W., and Harrison, E. F.: Results of High School Tuberculosis Program in Tennessee, J. Tenn. M. A. **38**: 97, 1945.

2. Long, E. R., and Stearns, W. H.: Physical Examination at Induction: Standards with Respect to Tuberculosis and Their Application as Illustrated by a Review of 53,400 X-Ray Films of Men in the Army of the United States, Radiology **41**: 144, 1943.

3. Yerushalmy, J., and Moriyama, I. M.: Tuberculosis Mortality in the United States and in Each State: 1944, Pub. Health Rep. **61**: 487, 1946.

4. Tager, M., and Liebow, A. A.: Observations on Histoplasmosis: Induced Infection in the Mouse, Yale J. Biol. & Med. **14**: 469, 1942.

5. Smith, C. E.: Coccidiodomycosis, M. Clin. North America **27**: 790, 1943.

6. Christie, A., and Peterson, J. C.: Pulmonary Calcification in Negative Reactors to Tuberculin, Am. J. Pub. Health **35**: 1131, 1945.

7. Palmer, C. E.: Nontuberculous Pulmonary Calcification and Sensitivity to Histoplasmin, Pub. Health Rep. **60**: 513, 1945.

8. DeMonbreun, W. A.: Cultivation and Cultural Characteristics of Darling's Histoplasma Capsulatum, Am. J. Trop. Med. **14**: 93, 1934.

9. (*a*) Zarafonetis, C. J. D., and Lindberg, R. B.: Histoplasmosis of Darling: Observations on Antigenic Properties of Causative Agent; Preliminary Report, Univ. Hosp. Bull., Ann Arbor **7**: 47, 1941. (*b*) Van Pernis, P. A.; Benson, M. E., and Holinger, P. H.: Specific Cutaneous Reactions with Histoplasmosis: Preliminary Report of Another Case, J. A. M. A. **117**: 436 (Aug. 9) 1941.

10. (*a*) Palmer, C. E.: Geographic Differences in Sensitivity to Histoplasmin Among Student Nurses, Pub. Health Rep. **61**: 475, 1946. (*b*) Christie, A., and Peterson, J. C.: Histoplasmin Sensitivity, J. Pediat. **29**: 417, 1946. (*c*) Furcolow, M. L.; High, R. H., and Allen, M. F.: Some Epidemiological Aspects of Sensitivity to Histoplasmin and Tuberculin, Pub. Health Rep. **61**: 1132, 1946. (*d*) Prior, J. A., and Allen, M. F.: Geographic Distribution of Histoplasmin and Tuberculin Reactors Among Ohio State University Freshmen and Student Nurses Training in Columbus, Ohio Hospitals, ibid. **62**: 1608, 1947. (*e*) Bunnell, I. L., and Furcolow, M. L.: Variations in Histoplasmin Sensitivity in Certain Cities in Eastern Kansas, ibid. **63**: 1298, 1948. (*f*) Beadenkopf, W. G.; Loosli, C. G.; Lack, H.; Rice, F. A., and Slattery, R. V.: Tuberculin, Coccidioidin, and Histoplasmin Sensitivity in Relation to Pulmonary Calcification, ibid. **64**: 17, 1949.

11. Beadenkopf, W. G.; Savage, L. J.; Ward, J. M.; Grayston, J. T.; Hall, C., and Loosli, C. G.: Histoplasmosis in Illinois, to be published.

12. (*a*) Loosli, C. G.; Beadenkopf, W. G.; Rice, F. A., and Savage, L. J.. Some Epidemiological Aspects of Histoplasmin, Tuberculin, and Coccidioidin Sensitivity, Am. J. Hyg. **53**: 33, 1951. (*b*) Beadenkopf and others.[10e]

it may be attributed, in part, to more intensive case reporting.[3] However, for histoplasmosis the distribution is strikingly regionalized, in a manner similar to the regionalization of coccidioidomycosis in the San Joaquin Valley of California.[5] For this reason histoplasmosis might be expected to be spread, like coccidioidomycosis. Indeed, we have recently suggested [11] a possible method of natural infection by H. capsulatum that, in brief, consists of: (*a*) dissemination of the soil-fungus mixture by floods in the Mississippi Valley, and (*b*) after drying, a further dissemination of the dried mixture by winds, resulting in air-borne infection.

Evidence from observations of both animal and human infections with the fungus is being accumulated to show that, within certain limits, which are discussed below, a positive histoplasmin skin test means a past or present histoplasmotic infection. In this way, the test resembles the tuberculin skin test used at diagnostic strengths.[19] There is resemblance, also, in the fact that critical illnesses resulting from several causes, old age—and, particularly, both factors in combination — depress sensitivity to both histoplasmin and tuberculin.[20] The histoplasmin skin test has certain limitations in specificity in the presence of infection by two other fungi, Coccidioides and Blastomyces,[21] apparently due to cross sensitivity with these fungi.[22] Both histoplasmin and tuberculin skin tests appear relatively independent and specific, however, each in the presence of infection by the other organism. Chinese students at the University of Chicago who reacted to tuberculin almost 100 per cent showed a negligible reaction rate to histoplasmin.[12a] Residents of certain Illinois counties who reacted to histoplasmin almost 100 per cent likewise showed a negligible reaction rate to tuberculin.[11] Some association between tuberculin and histoplasmin tests has been found among student nurses in certain cities of the United States, but this association is slight and, even if due to cross sensitivity, would seldom confuse diagnostic procedures.[23]

SYMPTOMATOLOGY

It may be possible in the future to predict with accuracy the probabilities of various disease processes and symptom patterns that can be expected after an infective dose of H. capsulatum. If interpersonal exchange of the disease continues to be unlikely or rare, such a prediction in the form of a spectrum of the disease should be as attainable as that excellent picture of coccidioidomycosis symptomatology that was worked out by Smith and his associates [24] during the recent war.

An attempt today to construct a disease spectrum for histoplasmosis must be extremely tentative and offered only with the understanding that changes of generous proportions will not only be required later, but perhaps even at present will be insisted on by others in the field. Clinical reports are appearing in increasing frequency today describing a wide variety of infections that, altogether, make any general description of the disease uncertain. Furthermore, the whole gamut of illness severity, from a symptomless infection to a rapidly fatal generalized infection, seems to characterize histoplasmosis.

The first and mildest portion of a spectrum, the symptomless infection, grossly defined as it is in a medical history as "no previous significant illness," appears to occur in the majority of persons after infection by the fungus. Attempts to detect illness have generally been unsuccessful even among students who have been observed to develop histoplasmin sensitivity, i. e., to convert from a nonreactor to a reactor within a period of months.[25] Some assistance in identifying the disease process in this type of infection has been obtained with information from serial complement fixation determinations, which employ the mycelian phase antigen,[26] the yeast phase antigen [27] and the collodion agglutination test.[28] Suggestions of activity, obtained serologically, have intensified cultural search and search for specific organ lesions and functional abnormalities. However, the principal means of identifying the asymptomatic infection has been until now the positive skin test reaction, and it has represented the only sign of disease in the majority of infected persons.

The second portion of the spectrum appears to be the frequently encountered pulmonary infection. The calcified lesion that appears in chest roentgenograms has been demonstrated usually in over one fourth of adults infected with H. capsulatum.[29] Many of this group has no illness apparent to them and symptomatically could be placed in the first portion of the disease spectrum. However, there is an increasing number of reports describing various types of chronic pulmonary infiltrates, with and without cavitation, that are either proved to be

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13. (*a*) Long and Stearns.[2] Beadenkopf and others.[11] Loosli and others.[12a] (*b*) Dickie, H. A., and Clark, E. A.: Histoplasmin and Tuberculin Sensitivity in Relation to Pulmonary Calcifications Among University of Wisconsin Students, Ann. Int. Med. **28**: 1087, 1948.

14. (*a*) Christie and Peterson.[6] Furcolow and others.[10c]

15. Furcolow and others.[10c] Prior and Allen.[10d] Beadenkopf and others.[10e] Dickie and Clark.[13b]

16. Ferebee, S. H., and Furcolow, M. L.: Histoplasmin Sensitivity Among Siblings, Pub. Health Rep. **62**: 834, 1947.

17. (*a*) Opie, E. L., and McPhedran, F. M.: The Contagion of Tuberculosis, Am. Rev. Tuberc. **14**: 347, 1926. (*b*) McPhedran, F. M., and Opie, E. L.: The Spread of Tuberculosis in Families, Am. J. Hyg. **22**: 565, 1935.

18. Loewen, D. H.: Personal communication to the authors.

19. Furcolow, M. L.; Hewell, B.; Nelson, W. E., and Palmer, C. E.: Quantitative Studies of the Tuberculin Reaction: I. Titration of Tuberculin Sensitivity and Its Relation to Tuberculous Infection, Pub. Health Rep. **56**: 1082, 1941.

20. Furcolow, M. L.; Emge, M. E., and Bunnell, I. L.: Depression of Tuberculin and Histoplasmin Sensitivity Associated with Critical Illness, Pub. Health Rep. **63**: 1290, 1948.

21. (*a*) Emmons, C. W.: Studies of the Role of Fungi in Pulmonary Disease: I. Cross Reactions of Histoplasmin, Pub. Health Rep. **60**: 1383, 1945. (*b*) Howell, A.: Studies of Fungus Antigens: I. Quantitative Studies of Cross-Reactions Between Histoplasmin and Blastomycin in Guinea Pigs, ibid. **62**: 631, 1947.

22. (*a*) Loosli and others.[12a] (*b*) Smith, C. E.; Saito, M. T.; Beard, R. R.; Rosenberger, H. G., and Whiting, E. G.: Histoplasmin Sensitivity and Coccidioidal Infection: I. Occurrence of Cross-Reactions, Am. J. Pub. Health **39**: 722, 1949.

23. Palmer, C. E., and Petersen, O. S.: Doubtful Reactions to Tuberculin and Histoplasmin, Pub. Health Rep. **65**: 1, 1950.

24. (*a*) Davis, B. L.; Smith, R. T., and Smith, C. E.: An Epidemic of Coccidioidal Infection (Coccidioidomycosis), J. A. M. A. **118**: 1182 (April 4) 1942. (*b*) Smith, C. E.; Beard, R. R.; Rosenberger, H. G., and Whiting, E. G.: Effect of Season and Dust Control on Coccidioidomycosis, J. A. M. A. **132**: 833 (Dec. 7) 1946. (*c*) Smith, C. E.; Beard, R. R.; Whiting, E. G., and Rosenberger, H. G.: Varieties of Coccidioidal Infection in Relation to the Epidemiology and Control of the Diseases, Am. J. Pub. Health **36**: 1394, 1946.

25. Loosli, C. G., and others: Unpublished data.

26. (*a*) Tenenberg, D. J., and Howell, A.: A Complement Fixation Test for Histoplasmosis: I. Technic and Preliminary Results on Animal Sera, Pub. Health Rep. **63**: 163, 1948. (*b*) Furcolow, M. L.; Bunnell, I. L., and Tenenberg, D. J.: A Complement Fixation Test for Histoplasmosis: II. Preliminary Results with Human Sera, ibid. **63**: 169, 1948.

27. (*a*) Saslaw, S., and Campbell, C. C.: The Use of Yeast Phase Antigens in a Complement Fixation Test for Histoplasmosis: I. Preliminary Results with Rabbit Sera, J. Lab. & Clin. Med. **33**: 811, 1948. (*b*) Campbell, C. C., and Saslaw, S.: Use of Yeast Phase Antigens in a Complement Fixation Test for Histoplasmosis: III. Preliminary Results with Human Sera, Pub. Health Rep. **64**: 551, 1949.

28. (*a*) Saslaw, S., and Campbell, C. C.: A Collodion Agglutination Test for Histoplasmosis, Pub. Health Rep. **64**: 424, 1949. (*b*) Saslaw, S., and Campbell, C. C.: *Serologic Studies in Histoplasmosis*, Am. J. Pub. Health **40**: 427, 1950.

29. (*a*) Christie and Peterson.[6] (*b*) Palmer.[10] Beadenkopf and others.[10e]

histoplasmosis or that display strong suggestion of the diseases.[30] Like tuberculosis, the infiltrates are found to occur, frequently, without symptoms. In some of the cases reported, the complement fixation test has proved to be of considerable value in distinguishing the causes of these pulmonary infiltrates that roentgenologically could be considered due to either tuberculosis or histoplasmosis. Sputum cultures that show the fungus have supplied final proof.

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SUMMARY

In this discussion the similarities and dissimilarities in the epidemiology and disease characteristics of histoplasmosis, tuberculosis and coccidioidomycosis have been given. In general, these diseases present many similarities. Each affects many persons, without detectable signs or symptoms beyond skin sensitivity development; each is prone to attack the lungs, producing either acute or chronic infiltrates that are known to be frequently indistinguishable roentgenologically, and each has a relatively uncommon form consisting of a fatal disseminated infection. No comparative data concerning the course and fatality rates of the three types of infection are available. Although there are certain fundamental differences in the epidemiology of histoplasmosis, tuberculosis and coccidioidomycosis, the above similarities are of such importance that all three diseases should be considered in any tuberculosis control program.

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SUCTION SOCKET

PROPER SELECTION OF PATIENTS FOR ABOVE KNEE ARTIFICIAL LEG

Charles O. Bechtol, M.D., Oakland, Calif.

The purpose of this paper is to present facts of clinical importance in the prescription and fitting of the suction socket above knee artificial leg. The suction socket has been shown to be advantageous as a fittting method for most above knee amputees. The actual fitting and alignment of a section socket leg involves special problems of functional anatomy and gait.[1] Excellent historical, statistical and technical reviews are available on the suction socket method of fitting, and these aspects of the problem will not be discussed in this paper.[2] Four subjects of clinical importance will be discussed: (1) the time required for the fitting of the suction socket, (2) the types of stumps in which difficult fit may be expected, (3) the type of surgical technique in amputation which produces a stump most favorable for fitting the suction socket and (4) the postoperative care and preparation for the fitting of a suction socket.

TIME REQUIRED FOR FITTING OF THE SUCTION SOCKET

The fitting of a suction socket above knee prosthesis is time consuming because the suction socket requires a more accurate fit than the conventional type of prosthesis. Suction is maintained by an accurate fit. Weight bearing on the ischial seat is comfortable only if this seat is accurately placed. Since the bony and muscular anatomy is quite variable from one stump to another, there is no single standard socket pattern suitable for all amputees.

In contrast to the atrophy and shrinkage of muscle encountered with the use of the belt type of leg, the muscles usually become hypertrophied and firm with the use of the suction socket leg. This necessitates enlarging of the socket, since, if the socket is not enlarged, a severe edema of the end of the stump will occur. Some sockets have been enlarged from 10 to 20 times during the first year or two of wear. This is particularly common in stumps in which the musculature is very flabby at the time of initial fitting.

Because of the added fitting time and the necessary returns to the limb shop for enlargement of the socket, the suction socket should not be recommended for any patient who cannot spare this additional time. This should be thoroughly explained to any patient who lives at a distance from the limb dealer or whose business commitments might interfere with frequent returns for fittings. Patients who are uncooperative or who are irresponsible should likewise be discouraged from choosing the suction socket.

TYPES OF STUMPS WHICH ARE DIFFICULT TO FIT

Almost any type of stump can be fitted, provided the amputee is cooperative and willing to return for the necessary fittings. In some difficult stumps it has taken a year or more to finally achieve a satisfactory fit. Those who have rejected the suction socket, on the other hand, have almost never done so on the basis of fitting difficulties alone. Rejection of the suction socket is almost always a combination of the factors of difficulty in fitting, plus the fact that the patient is unable to return at frequent intervals for revisions of the shape of the socket. Therefore, if any of the stump conditions mentioned below are present, the amputee should be specifically warned that his fitting will be slower than usual and that *he may expect to return many times for revisions of the* shape of the socket.

Flabby stumps are both difficult to fit and require frequent enlargement of the socket during the initial period of fit. A flabby stump may be due either to atrophic muscle or excessive subcutaneous fat or both. This type of stump allows marked rotation of the soft tissues even when the muscles are tensed. The stump should be tested by grasping it firmly with both hands and rotating the soft tissues to the left and right, first with the stump muscles relaxed, and then with the stump tensed. A rotation which allows the skin to move more than 2 or 3 inches (5 or 7.6 cm.) in either direction indicates that some difficulty in fitting may be expected. If the rotation can be carried out through approximately 90 degrees, a very marked amount of stump growth will undoubtedly follow the use of the suction socket, and the patient should be warned that he will have to return many times for enlargement of the socket.

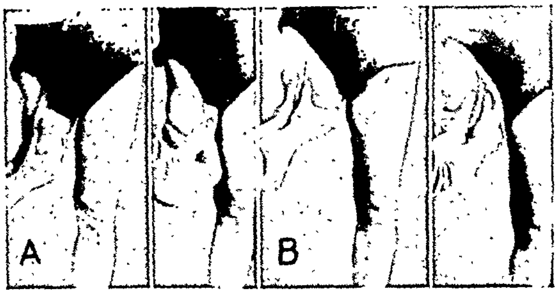

Fig. 1.—Test for firmness of the stump and degree of soft tissue rotation. *A*, a flabby stump, showing marked degree of soft tissue rotation. This occurs even though the muscles are tensed. *B*, a firm stump, showing little rotation.

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Because of the added fitting time and the necessary returns to the limb shop for enlargement of the socket, the suction socket should not be recommended for any patient who cannot spare this additional time. This should be thoroughly explained to any patient who lives at a distance from the limb dealer or whose business commitments might interfere with frequent returns for fittings. Patients who are uncooperative or who are irresponsible should likewise be discouraged from choosing the suction socket.

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Flabby stumps are both difficult to fit and require frequent enlargement of the socket during the initial period of fit. A flabby stump may be due either to atrophic muscle or excessive subcutaneous fat or both. This type of stump allows marked rotation of the soft tissues even when the muscles are tensed. The stump should be tested by grasping it firmly with both hands and rotating the soft tissues to the left and right, first with the stump muscles relaxed, and then with the stump tensed. A rotation which allows the skin to move more than 2 or 3 inches (5 or 7.6 cm.) in either direction indicates that some difficulty in fitting may be expected. If the rotation can be carried out through approximately 90 degrees, a very marked amount of stump growth will undoubtedly follow the use of the suction socket, and the patient should be warned that he will have to return many times for enlargement of the socket.

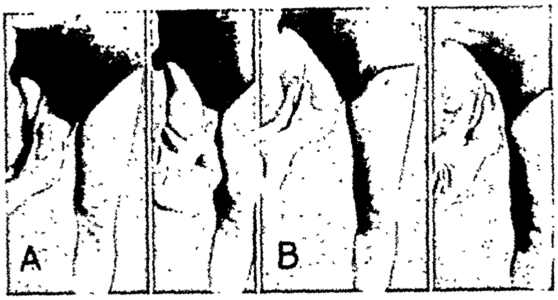

Fig. 1.—Test for firmness of the stump and degree of soft tissue rotation. *A*, a flabby stump, showing marked degree of soft tissue rotation. This occurs even though the muscles are tensed. *B*, a firm stump, showing little rotation.

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Short stumps in which the femur measures less than 5 or 6 inches (12.7 or 15 cm.) from the top of the trochanter are difficult to fit. Though the fit may be satisfactory for walking, suction is frequently lost when sitting down or in getting in or out of an automobile. It must be emphasized, however, that the suction socket method of fitting offers particular advantages to short stumps because of the increased control and reduced piston action, and the amputee with a short stump should be discouraged only if he is unable to spend the necessary time for fitting.

Very long stumps resulting from the Callender or Gritti-Stokes type of amputation present a fitting problem, since the necessary free air space at the end of the socket interferes with the placement of the usual knee mechanism in the artificial leg. Since there is no muscle padding over the bone end, a very accurate fit is necessary in the bottom of the socket.

Stumps in which the muscles have not been fixed over the end of the bone present a problem, since these muscles may retract rather markedly during certain phases of walking and lead to excessively high negative pressure within the socket. The marked stump muscle retraction may be repaired by a surgical revision of the stump, suturing the muscles over the bone by means of stitches through their fascia.[3] The excessive negative pressure may also be reduced by the use of the variable leak rate type of valve.

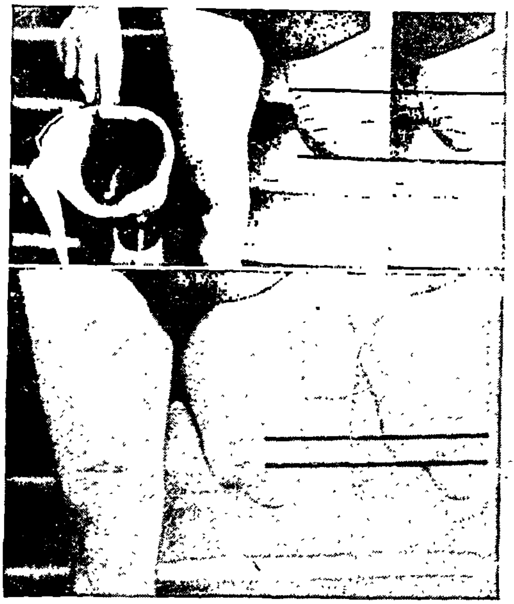

Fig. 2.—Examples of retraction of the stump end when the muscles are tensed (right). The change in shape and size of the stump makes fitting difficult.

AMPUTATION TECHNIQUE

The suction socket can be most easily fitted if the femur is amputated 3 to 4 inches (7.6 to 10 cm.) above the adductor tubercle, and above the supracondylar flare of the femur. In any amputation above this level, all the bone length possible should, of course, be saved. The muscles should not be allowed to retract but should be closed over the bone end without tension by means of sutures placed in the fascia of the muscle. The deep fascia of the thigh and the skin are then closed over the muscles by separate sets of sutures. Inman,[4] reports that this is the standard procedure in preparing a stump for a suction socket in Germany, where the suction socket has been used for a number of years.

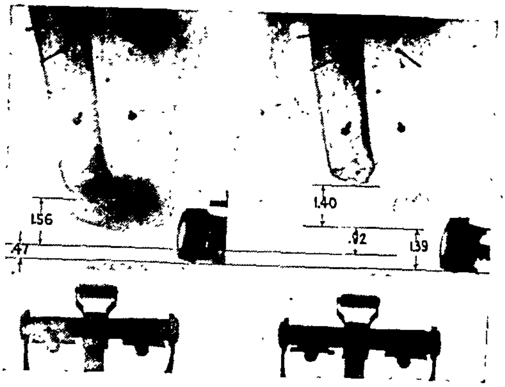

Fig. 3.—Roentgenograms of a stump actually in a suction socket, showing the effect of marked muscle retraction. Weight bearing is shown on the left. On the right, piston action producing a high negative pressure is shown, in a nonweight bearing condition with the muscles tensed.

POSTOPERATIVE CARE

The sutures should be removed at the end of the tenth day after the operation. During these 10 days the patient should lie on his face in bed at least one hour a day to prevent the beginning of a flexion contracture of the hip. After removal of the sutures, the stump should be wrapped with an elastic bandage. This wrapping must cover the end of the stump by means of reverses, and it must come up to the inguinal fold in front of the leg and the gluteal fold behind, so that the subcutaneous tissues of the leg will be of uniform thickness. If only the lower portion of the stump is wrapped, the fitting of a suction socket will be considerably more difficult. In order to maintain the position of the wrapping high at the top of the stump, it is necessary to put on a spica type of bandage with several turns taken about the waist

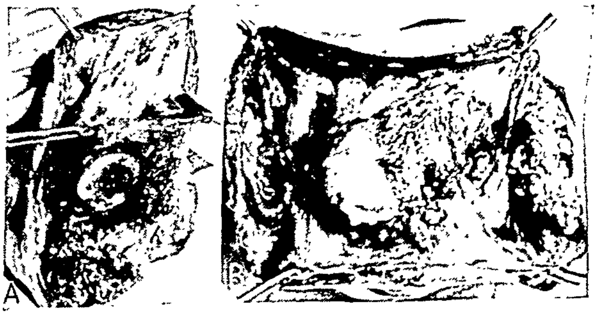

Fig. 4.—*A*, layers for closure of thigh amputation. Upper portion shows skin and fascia lata divided at the same level; center shows quadriceps muscle with its overlying fascia; lower portion shows femur divided above the supracondylar flare. *B*, thigh stump with muscular layer closed. In the top part clamps on the anterior fascia lata are seen; in the bottom part, clamps on the posterior fascia lata. Interrupted sutures through the fascia of muscles close the muscles over the femur. There should be minimal dissection of the fascial planes. In *B* it is difficult to distinguish between the fascia lata and the surface of the muscle, because the surface of the muscle has not been disturbed.

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and the top of the stump in a figure of eight. The purpose of the wrapping with an elastic bandage is to prevent the excessive accumulation of subcutaneous fat. The bandage does not interfere with development of the muscles. The stump should be bandaged day and night. The bandage may be removed during exercising or bathing of the stump.

The muscle exercises are divided into two groups: first, those involving the muscles of the hip which have not been disturbed by the amputation; second, those mobilizing muscles of the thigh that have been divided in the process of amputation. When the sutures are removed, active exercise of the hip muscles should be started. Extension and abduction should be particularly stressed, and the hip should be carried through a full range of active motion in all directions. As soon as the end of the stump is nontender and able to tolerate a cuff, exercises against resistance should be started. It is of great importance in older amputees to prevent the formation of hip flexion contracture. The hip flexors should be stretched daily with the patient lying on his face and the stump placed on a pillow. Exercise of the severed muscles of the thigh should also be started 10 days after the operation. These should consist of alternate contractions of the extensor and flexor muscles of the knee. At first, no attempt should be made at vigorous contractions, because of pain and the possibility of disrupting some of the muscle sutures. At the end of six weeks, vigorous contractions of these severed muscles may be started.

Fitting of the suction socket may be started when the site of amputation is completely healed and painless. Fitting may occasionally be started as early as six weeks following amputation, though 8 to 12 weeks is a more usual time for such fitting.

SUMMARY AND CONCLUSIONS

Unsuccessful attempts at fitting above knee suction socket artificial legs are usually the result of two factors: first, the inability of the amputee to spare the necessary time for fittings; and second, the presence of either a flabby, poorly muscled stump or a very short stump. Difficulty is also occasionally encountered in very long stumps or in stumps with marked retraction of the muscles. On the other hand, even very difficult stumps can be fitted if the amputee is cooperative and persistent in his attempts to obtain the fitting. The amputee can be spared a great deal of lost time and disappointment if these facts are explained to him at the time of prescription of the artificial leg.

The most favorable type of amputation for fitting a suction socket above knee prosthesis is an amputation which is 3 or 4 inches (7.6 or 10 cm.) above the adductor tubercle, and in which the muscles have been approximated over the bone end by means of sutures in the fascia of the muscle.

The most important factors in postoperative care are (1) the prevention of hip flexion contracture, (2) the wrapping of the stump with an elastic bandage and (3) the initiation of active exercise to the hip muscles. The stump-wrapping bandage should completely cover the stump and be high in the inguinal and gluteal fold. To accomplish this, a spica type of bandage around the hip is necessary. Active exercises to the hip muscles beginning 10 days after the operation, together with exercises of the muscles which have been severed, will make the fitting of the suction socket and the gait training of the patient much simpler. The fitting of the artificial leg may be begun between six and 12 weeks after the amputation, as soon as the stump is well healed and painless.

1674 Franklin Street.

ABSTRACT OF DISCUSSION

Dr. Robert Mazet, Jr., Los Angeles: Dr. Bechtol's presentation is a masterpiece in its brevity. Our ideas have undergone some changes. It was first thought that the top of the socket should be quite rectangular in shape, with a wide and high ischial seat, rather pronounced cutouts for the gluteal and adductor muscles, and extension on the lateral side to just below the top of the great trochanter. A fairly tight uniform fit throughout was considered essential. We have learned that the extreme height laterally is not necessary. This has, therefore, been discontinued. Early in the program, excessive ischial irritation on weight bearing, pressure just distal to the ischium when sitting and loss of suction on sitting were common complaints. Prolongation of the ischial seat laterally, permitting some weight bearing in the gluteal area, and decreasing its height and depth have proven helpful. Its sharp inner border has been rounded off. A shallower gluteal cutout is now used. These modifications have resulted in a loss of some of the rectangular shape. The undercut anteriorly is less pronounced than formerly. The snug fit throughout is not desirable. Edema was often caused, not by a tight fit at the top, but by a tight fit at the distal end. This was particularly noticeable in stumps with partial end-bearing. The explanation for this is not entirely clear. Our buckets are now made with a tight-fitting top, close contact anteriorly and a loose fit between stump and bucket elsewhere. They are somewhat barrel-shaped. Dr. Bechtol mentioned changes in the stump contour. In few cases has the anticipated initial shrinkage in stump circumference occurred. Many stumps have increased in size as the musculature of the thigh developed. Sometimes a relative change has occurred in stumps with a large adductor roll. The roll has been pulled down into the bucket and disappeared. The subcutaneous fat of the roll appears to be compressed and absorbed. At the same time, there is an increase in the subcutaneous fat of the distal portion of the stump. Sebaceous cysts may be prevented by pulling the adductor roll well down into the bucket.

Dr. Paul E. McMaster, Los Angeles: In general, our observations in the Los Angeles area coincide with those of Dr. Bechtol. We have had 90 patients who were veterans. Seventeen have been rejected, and 66 have been successfully fitted with suction sockets and are using this prosthesis regularly, most of them for a period of over a year. Seven patients have been fitted, who, for various reasons, have had to change or convert to the conventional type of prosthesis. Our failures have been due to two main causes: uncooperative patients, who can best be described as persons mentally insufficient and unable or unwilling to cooperate, and the inability of some patients, because of occupation or distance, to make and/or keep appointments for the multiple refittings that are necessary for successful results with the suction socket. All our patients whose psychogenic status might be questionable are referred for psychiatric evaluation. This was routine during the earlier stages of our program, and a few patients have been turned down because of unfavorable reports. Bony stumps at least 4½ to 5 inches (10 to 12.7 cm.) from the pubic tubercle are considered the minimal length for satisfactory fitting. We measure from the pubic tubercle, rather than from tip of trochanter, because it is easier, as a rule, to locate accurately. This is the measurement most commonly used by our limb fitters, and it is constant, requiring only that the stump be in normal alignment, neither adducted nor abducted. The optimum amputation site is at about the junction of the middle and lower thirds of the thigh. Knee length or slightly shorter stumps present definite fitting problems and are not desirable. Dr. Bechtol mentioned the need for suturing the muscles over the stump end. It is doubtful, in my mind, if this is necessary. It is estimated that only a very few, if any, of our patients had had this done, and we have had to make no stump revisions to correct excessive retraction of muscles. It was also stated that excessive negative pressure could be reduced by the use of the variable leak rate type of valve. We believe high negative pressure is an indication of improper fitting of the socket, and the improper fitting should be corrected, rather than an attempt made to correct the pressure by valve changes. Also, we believe that the ordinary exhaust type valve, rather than the breathing or two way valve, is, in general, superior. Wrapping the stump with an elastic bandage postoperatively, and carefully carrying this to the inguinal and gluteal regions with a spica type wrapping is important. This, as Dr. Bechtol pointed out, will tend to decrease excessive subcutaneous fat. Many of our older amputees, after having worn a conventional leg, develop large adductor rolls of fat. With careful fitting of a socket and the repeated pulling down of these rolls into the socket with the stump sock, they can in time be made to disappear. Dermatitis of fairly marked degree has occurred in a few of our patients. The apparent causes were excessive perspiration and poor daily hygiene of stump. The former may be helped with silicagel in the socket; also, a breather type valve will help in some cases. The use of a 0.5 to 1 per cent solution of formaldehyde wiped off with alcohol may help. Daily washing with ordinary soap and warm water usually is sufficient to keep stumps in excellent condition. I would like to ask Dr. Bechtol what his experience has been with fitting a suction socket to the arteriosclerotic amputee of the 60 to 70 year group.

Dr. Charles O. Bechtol, Oakland, Calif.: Age in itself is no contraindication to the use of the suction socket. Most of our older patients, however, have poor coordination and flabby stumps and may have circulatory difficulty in the remaining leg. These in themselves, may be contraindications to the use of the suction socket. With regard to suturing the muscle over the end of the bone, we have had at least two dozen cases in which the muscles have not been sutured. In all of them, the fitting of the suction socket has been considerably more difficult. The shape of the suction socket is exceedingly variable; there is no rule of any type by which you can lay down standard patterns for the shape. Edema has almost always been due to a tight fit and, strangely enough, a tight fit in the lower portion of the socket. The patient can tolerate fairly tight fit at the top of the socket, but fit must be loose in the lower two-thirds. The variable leak rate valve mentioned is only applicable to about 10 per cent of the suction socket wearers; it is usually applied in those cases in which very marked stump muscle retraction occurs. It should be reemphasized that most amputees feel that the suction socket presents advantages which outweigh any difficulties or delays encountered in fitting.

REPAIR OF SURFACE DEFECTS OF THE FOOT

RESURFACING THE FOOT BY PLASTIC SURGERY FOR DEFECTS SUCH AS PLANTAR WARTS AND TRAUMATIC, THERMAL AND RADIATION LESIONS

James Barrett Brown, M.D.
and
Minot P. Fryer, M.D., St. Louis

Defects and losses of the skin and subcutaneous tissues of the foot cause major discomfort and disability, and trouble continues until there is complete permanent healing. Resurfacing the foot with free grafts and flaps may result in adequate results for function and comfort, but the processes may be technically difficult, and also troublesome for the patient. Therefore, it is important to realize that there are numerous qualifications and limitations of this resurfacing in trying to secure solid permanent closure of even a small defect. Problems encountered, including those found in military surgery, have been recorded,[1] and some of the present material is based on these references.

ANATOMY OF THE FOOT

In its skin and subcutaneous makeup the sole is a special congenital organ or structure, and is not developed individually. The same sort of tissue does not occur elsewhere in the body (except in the palm), and if it is once lost it can be only substituted for. Tissues transplanted to the sole from other areas do not undergo metaplasia to become a normal sole, nor will walking on the new tissue cause it to do so, and the substituted area will require care and protection to prevent irritation and ulceration. Because of this, transfer of skin from the opposite sole might seem indicated, but the transfer would result in added debilitation in most instances. If hair-bearing skin is transplanted to the sole, the hair will continue to grow, except as it is worn off. This is because the foreign skin does not take on the characteristic of producing the thick keratinized layer that occurs in the normal sole.

The surface over the normal heel cord is also specialized, and, though the skin over the rest of the dorsum is not as specialized, the whole foot including the malleoli and the dorsum requires an intact surface for the protection of these areas. In surgical procedures on the foot, care is taken to keep incisions at a minimum and an attempt made to assure adequate coverage and prompt healing. That deep healing and proper function are dependent on an intact surface is nowhere truer than in the foot.

The sensory nerve supply of the foot is of great importance, and if anesthesia occurs either in scarred or repaired areas, there is apt to be trouble from trauma and ulceration. If nerves remain present in the general area, sensation will develop in both grafts and flaps to a worthwhile protective degree, and the grafts may develop practically normal sensation. But if the nerve supply has been so interrupted that there are no nerves available, there is apt to be chronic ulceration to start with, and it may continue in the repaired area. The care of the anesthetic foot is tedious but must be vigilant if trouble is to be avoided.

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Free thick split skin grafts are used generally, if there is an adequate subcutaneous pad of tissue to carry the graft and form a supporting cushion. If this pad is present, the repair is better with a free graft surface than any flap transferred from a distance. By this plan much time can be saved and morbidity reduced. Free grafts may be used as a temporary or trial measure in burns, radiation lesions, avulsions and cancer, and a flap put in secondarily if it becomes necessary. The occasional extra operation is well worth while in the consideration of trying to avoid a cumbersome cross leg flap.

This "skin graft dressing" method may save many extremities, and amputation can be left to secondary consideration if nerve and blood vessel supply to even a badly denuded extremity is intact. One of the most dramatic cases of this kind was that of a boy from one of whose feet the entire skin and the anterior third were torn off in a railroad accident. He was brought in for midleg amputation, but instead, the entire remaining part of the foot and the ankle were "dressed" in thick split grafts. The patient's foot was saved by means of this one single operative procedure. His care of the grafted foot was not excessive, even for a growing boy, and, aside from packing his shoe where his toes were missing, he had little difficulty and participated in normal athletics.

Thick split grafts are usually taken from high on the back of the thigh and buttocks with a simple graft knife and suction retractor. Pressure fixation dressings of fine mesh with bismuth tribromophenate (xeroform®), or petrolatum (vaseline®) gauze and surgical waste are carefully applied, fixing ankle and knee joints with adequate padding, gauze rolls and adhesive.

Full thickness grafts may be used if desired, especially for small defects when a suitable one can be obtained from the inguinal region.

Cross leg flaps are considered as a method for repair when other methods will not suffice. These flaps, the same as grafts, do not give a normal sole, because the skin of the flap does not undergo metaplasia into a heavy keratotic sole. Other difficulties in their use are cumbersomeness of procedure and damage to the donor site, necessitating its repair, and use of these flaps may be inadvisable because of the age of the patient, or joint fixation or some other disability.

Repairing donor sites of flaps may give difficulty if the sites are not advantageously selected, and as much disability has been observed resulting from the donor site as from the original trouble.

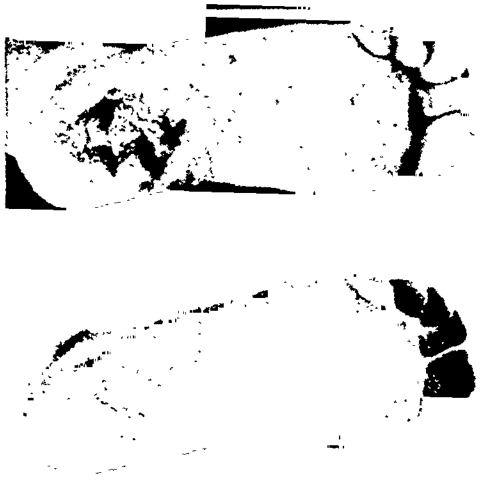

Fig. 1.—Top, foot after prolonged treatment, including radiation and tedious preparation of abdominal tubed flap (elsewhere), for wart of heel. Bottom, foot after repair with free split graft and permanent pedicle flap from side of foot with graft for donor site of pedicle in one operation. Distant flap was removed without necessity of use.

Delayed flat flaps, considered the safest to transfer, depend on gradual cutting off of the blood supply, taking at least two operations. To completely outline and undermine a flap and raise it on its pedicle and then put it back in its bed does not delay the blood supply of the flap, but simply delays the transfer to a later stage. The usual procedure is to open the long axis in two parallel lines, undermine between, and close the incisions. The distal end is cut across secondarily in three to 10 days and closed, usually under local anesthesia.

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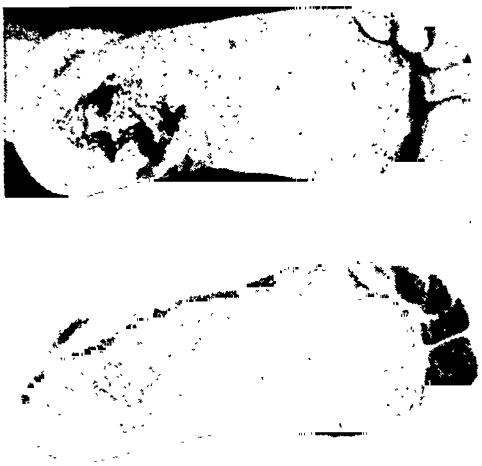

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The delayed flap is transferred when there is no swelling, induration or redness, and no suggestion of inadequate circulation through the pedicle.

A variation of the above is the implantation of a split graft under the flap at the time it is first elevated in order to have the donor site this much closed when the flap is used, but this method is not often resorted to on this service.

Tubed flaps are started in about the same manner as delayed flat flaps, except that the cut edges are closed in a tube formation and the open area underneath is grafted or closed. If a large flat "pan cake" is to be used on the end of the tube, this is delayed secondarily, as is the end of a flat flap. If only the tube is to be used, it is not usually necessary to delay the distal end; however, this can be an added precaution.

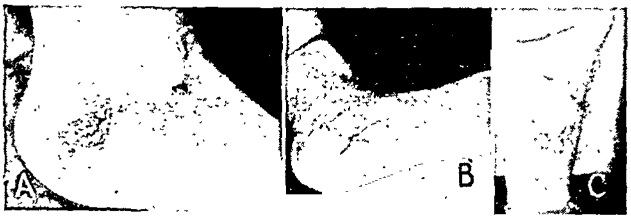

Fig. 2.—*A*, defect of 40 years duration resulting from a railroad accident. *B*, defect, after repair with direct cross leg flap in two operations, one on and one off, and two adjustments of the edges. *C*, donor site from which the flap was taken.

There are several methods of determining evidence of adequate circulation in a tubed flap, the best one of which, as learned by experience, is the finding of no redness, swelling or other sign of failing circulation. Chemical methods depending on injections and determination of absorption of test materials may give information about the tube, proximal to a tourniquet on one end, but will not help for the flat end or "pan cake" if one is used with the flap.

The procedure for combined flat and tubed pedicle flaps is about the same as that described for utilizing a flat area on the end of a tube. The tube in these instances is for ease of transfer, especially if the pedicle has to be twisted.

Cross sole flaps are mentioned only in order to repeat that in a large series they might result more in added disability than in benefit.

Direct cross leg flaps are most useful and simple and are relied on when the requirements of the defect are such that a donor site can be arranged satisfactorily. A short, broad pedicle is used, rather than a long, flat or tubed pedicle; the process is much quicker and easier and more economical, and the repair is possibly somewhat better because the flap is made to order to fit the defect during the first operation rather than by separate procedures. These flaps require that the foot can be carried to the donor site, in the same way that the hand can be carried to the abdomen so that delayed tubed or double pedicle flaps are scarcely ever needed for the hand and forearm. The short broad direct pedicle flap is turned back, and the foot is brought into place and anchored, either with or without dressing the donor site in free grafts.

Sites of flaps for certain defects can be more or less standardized, but each defect is an individual problem. The best site is the one the patient finds the most comfortable through practice, taking into consideration the avoidance of knee joint, nerves, and vessels.

Pocket flaps are ones made by simply opening an area on the leg, through a single long incision, usually made transversely below the knee, and undermining a pocket. These are for the end of the foot when it can be implanted into the pocket through the single opening. The procedure was developed at Valley Forge Hospital and used there extensively in military services with great saving in time. These flaps were often called "slash" flaps, but "pocket" seems more appropriate.

Double heel and toe flaps are utilized along the side of the knee for replacing the front and back of the foot in a single direct flap procedure. A pocket flap can be used for the toe and a direct flap for the knee. These flaps may seem bizarre for civil needs but are not bizarre in military plastic surgery, where resurfacing of the foot is a constant problem.

Jump flaps from the abdomen, with the forearm as a carrier, utilize the broad short direct pedicle method[2] of flap transfer. A large direct flap from the abdomen is put on the forearm and transferred secondarily to the foot.

There are variations of preparation of these flaps, including folding them on themselves to allow an interval between taking up and use on the foot, but the essential principles are the same when the short broad direct pedicle is used for rapid transfer of tissue.

It is necessary to use the thigh for larger flaps or for large flat or tubed flaps, and attention is again called to possible trouble from donor sites on the opposite lower leg. Small flaps, however, can usually be obtained successfully from the opposite lower leg without serious trouble in the donor site.

Dorsum-to-sole flaps are utilized as delayed flaps and, though limited in size and extent of transfer, are very useful around the edges of the sole over bearing points. These flaps may be direct, lateral shifts or delayed pedicles rotated down in place and may be permanent blood-carrying.

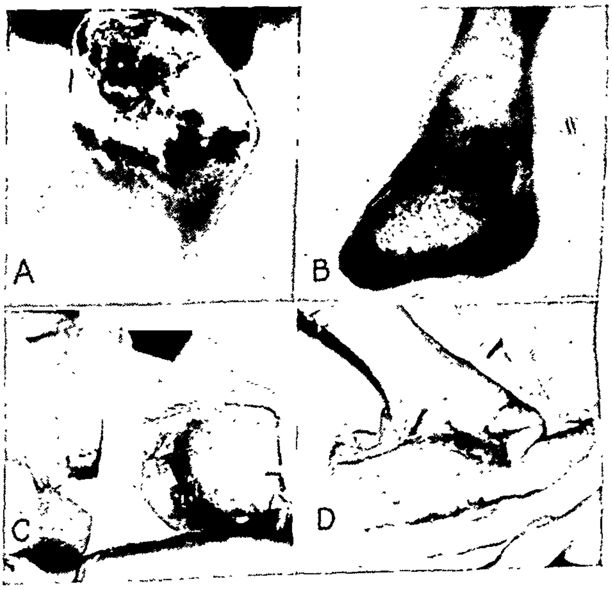

Fig. 3.—*A* and *B*, freezing injury with loss of all toes, and open end of foot, which was repaired with direct cross leg pocket (or slash) flap, in two operations, one on and one off. *C*, illustration of method of fixation of this pocket flap. *D*, illustration of method of using two direct flaps in a single operation for covering freezing injury, loss of toes and heel.

Closed wound flaps are formed by doing a split graft "dressing" of all raw areas. This may be advantageous, but it is not necessary either on the foot or elsewhere in

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2. Footnote 1c. Brown, J. B., and others: Direct Flap Repair of the Arm and Hand: Preparation of Gunshot Wounds for Repair of Nerves, Bones and Tendons, Ann. Surg. 122: 706-715 (Oct.) 1945.

the body if adequate dressing care can be given the operative field. Serious infection and fibrosis do not take place around a defect just because the donor site and pedicle of a flap have not been grafted.

The simplest, most direct methods are usually best for fixation of a foot to a cross leg flap, or an arm to a foot. This starts with the most comfortable position, as determined by practice, and with the simplest equipment. Adhesive, padding, and pillows with foam rubber over pressure points usually suffice and are the most comfortable. But plaster of paris with suitable struts and angle supports of light splint boards incorporated in the plaster may be needed to hold the knee up from the bed, or elsewhere to prevent unnecessary gravity, rotation and twisting. Padding should be copious with foam rubber, and suitable openings should be planned for inspection of the flap.

Detaching the flaps can be done in 14 to 21 days under local anesthesia, in stages if necessary; or, if there is a heel or two sides of the foot to cover, a secondary flap delay may be indicated before detachment is done.

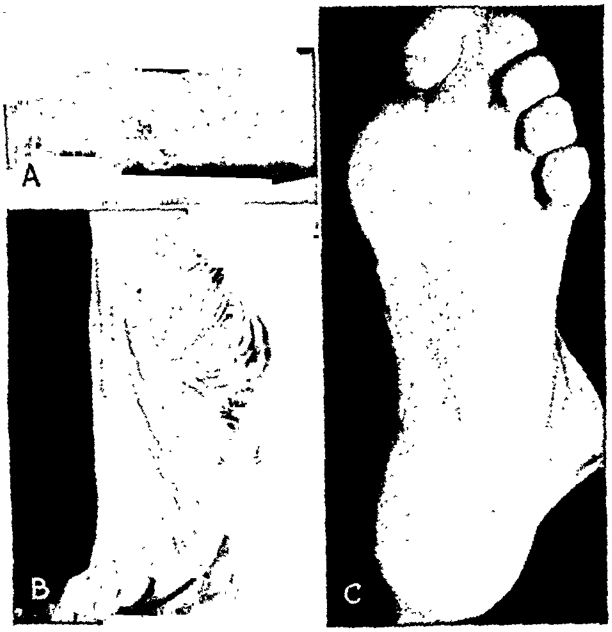

Fig. 4.—*A*, crippling wart with radiation lesion which was resected and repaired with a thick split graft in one operation. *B*, *deformed position of* foot, which had been assumed *to find relief from* excessive pain, with callus over instep from shoe pressure. *C*, foot after surgical repair.

Repairs of donor sites are done with free split grafts, usually at a time slightly later than that of the detachment, since there are some noteworthy contractures and by waiting the grafted area may be smoother. For those flaps that have been "dressed" in grafts to start with, there is usually some further closure or grafting to do when the flap is detached.

Final adjustment of flap is usually done several days after detachment but can be done at the time of detachment if conditions are favorable.

A suitable bed is as necessary for a flap as for a graft since a flap may not attach itself over avascular areas, or will it over dead bone tendon or fascia. It may pick up circulation around the edges, only to have a chronic sinus persist as long as there is deeper trouble.

Once the plantar fascia is exposed and infected or necrotic it is usually a source of prolonged trouble, and resurfacing is contraindicated until all dead material is cut off or removed. The same is true of the tendons, and these two elements may cause prolonged morbidity in open wounds or, if they occur, under flaps. Free grafts, of course, will not grow over such areas.

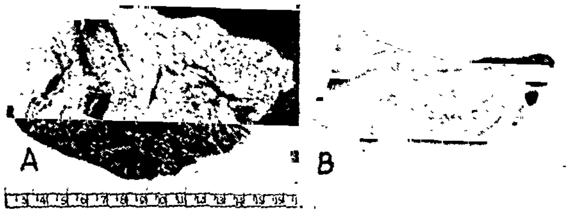

Fig. 5.—*A*, extensive wart and radiation lesion, closely approaching carcinoma. *B*, lesion after resection and repair with free split skin graft in one operation. Function is satisfactory for golf and normal activities.

Debridement in injured feet should be careful to eliminate dirt and dead tissue, but widespread cutting away of tissue should be done only after careful consideration, since there is so little extra or collapsible tissue in the foot.

Failing circulation in the extremities leads to questionable repairs of defects, and opens the possibility of repeat ucleration in the grafted site, so that the ultimate success of a repair in a circulatory dyscrasia or secondary impairment is uncertain, as it may be in leg ulcers. All of the processes involved in leg ulcers are not understood, but a basic point is that in some instances the circulation of the leg does not seem to have caught up with the requirements of the upright position.

Decubitus ulcers in persons with normal nerve supply usually respond to free grafting. Those in paraplegics may respond to the "take" of a graft but are subject to the same recurrent break down as any other area of anesthesia.

Plantar warts are the reason for most repairs of the sole. It is difficult for most patients and institutions and some medical echelons to understand how an insignificant thing like a wart can necessitate so much trouble and surgical work. An answer can be that the wart doesn't amount to anything, but its location does; and, to repeat, once the sole is open, disability exists until the sole is healed, free of trouble, and especially free of the wart. A painful wart might be likened to a cinder in the eye or a tack in a shoe, not much in *themselves, but* exceedingly painful and disabling.

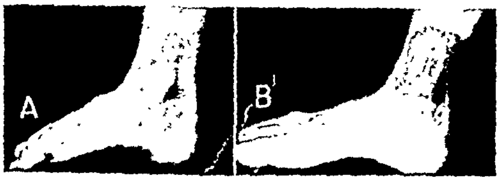

Fig. 6.—*A*, atomic radiation lesion in a laboratory worker. *B*, lesion after it was resected and repaired in one operation with a thick split graft.

Added to the wart itself may be a radiation lesion, and, to this, a malignant change, so that the problem is two fold: one, to get rid of the lesion, and, two, to give a satisfactory repair.

For repair of warts, scars and radiation lesions in the center of the foot, simple linear excision and closure may suffice; if not, a free thick split graft is used if sufficient pad is left to support it. Flaps from the side, or rotated, or from the dorsum may be needed, but the bearing surfaces over the first and fifth metatarsal heads and over the heel are not shifted to repair any defect. To do so would leave a scar over a bearing surface that might require a secondary repair even if a free graft were used to close the area.

Lesions over these three important bearing surfaces are not excised and closed by direct suture, because this would leave a disabling scar. Instead, there is usually a lateral shift from the midline, or a rotation flap closure from behind the toe, with repair of the donor site with a free graft.

Replacement of whole sole or large sections of it can be done with free thick split grafts if there is adequate padding left behind. If there is a question as to the adequacy of the padding, the graft can be used as a "dressing" and replaced later with a flap if necessary. Exposure of tendon, nerves, vessels, and, of course, of bone necessitates a thick pedicle flap, either cross leg or jump from the abdomen.

Gun shot wounds and others that avulse the pad usually require some variety of flap repair. Some of the wounds are of small surface area, but leave deep dense scars to the bone that need thick flap repairs in even these very small areas.

Radiation lesions are given special note because they are so prevalent and seem to be frequently missed in diagnosis. They are progressive lesions and are treated by removal, and grafting or flap repair.

Atomic radiation lesions will require the same principals of removal and repair. The fact that tissue which has been subject to radiation does not stand trauma and has poor ability to heal normally may make one hesitate to attempt surgical repairs in such areas, but in this discussion of resurfacing the foot it can be stated that the same principles apply to radiation lesions as to other lesions, with the qualification that there may be difficulty in healing the surgical repairs and there may be secondary deep necrosis, with amputation to be considered.[3]

Thermal injuries, including burns, freezing and immersion foot, are repaired according to the depth of loss with free grafts or flaps as outlined for other repairs.

SUMMARY AND CONCLUSIONS

Relief from intensely painful lesions and from prolonged debilitation may be acquired by comparatively simple procedures. The essential steps are (1) the removal of the lesion, (2) the repair of the defect with a suitable covering, (3) the obtaining of permanent, complete healing at the site of the repair, and (4) proper care by the patient of the substituted tissue to protect it from trauma.

Results of repairs of lesions of the foot vary according to the original disability but usually allow the patient normal activity.

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ABSTRACT OF DISCUSSION

Dr. J. Warren White, Honolulu, Hawaii: In our training, we have been warned against incisions on the sole or over other pressure-bearing surfaces. But many of us have known that we can get by without serious difficulties if we depart radically from such an axiom. Notorious along this line is the valuable longitudinal heel-splitting operation for osteomyelitis of the os calcis, in which the incision goes around the middle of the back of the heel, exposing the inside of the calcaneus in a fish mouth fashion, giving such wonderful exposure of that bone. Fortunately, now, in the days of the antibiotics, this operation is not as necessary as it was formerly, but it is well to know that it can be done with relative impunity. There is one type of graft that many of us have found most useful which Dr. Brown did not mention. I should appreciate his opinion on the use of the full-thickness graft, located in the classification of skin grafts between the time-consuming pedicle graft and the potentially keloid-producing split graft. Dr. Brown can do a split graft with a skill which a great many of us do not possess; therefore, I have been forced to use the full-thickness graft. In Honolulu we have excellently trained plastic surgeons to whom I can take the major problems, but in South Carolina, where I was for so many years, the problems involving indigents had to be solved locally by the orthopedists. We then used the time-consuming Ghormley technique in the avulsed heels, but, aside from that, we have used the full-thickness graft extensively. Most problems requiring its use, in the rural communities have been associated with burns in which healing has been characterized by cicatrization associated with the usual contractures. Hyperflexion or extension contractures of the toes are very common. Since going to Hawaii, I have done with much success many operations in which the hiatus produced by the opening of the transversely incised, contracted cicatrix, not infrequently extending the whole width of the foot, has been filled in by a full-thickness graft, the toes being held in the extreme overcorrected position during healing. The ankle, in which fixed dorsiflexion has resulted from a contracted scar is another area where a large, freely movable graft can be placed advantageously. Contrary to popular opinion, there is no limitation of size that restricts its use. Although I realize that Dr. Brown discounts the value of split skin grafting instruments, I should like to get his opinion on one recently devised by another Dr. Brown. It is manufactured in Indianapolis. This is the new automatic reciprocating mechanism, the dermatome, which I demonstrated at the Orthopedic Academy meeting two years ago in January. It has been most satisfactory. The trouble-producing vacuum part has been eliminated, and it now can be used as easily as one uses a lawnmower.

Dr. James Barrett Brown, St. Louis: The full-thickness graft is the best skin graft for certain areas, but it is not often necessary on the foot. Several things are important in this relation because the skin is so different in thickness over the various parts of the body. For instance, the foot has the thickest keratohyaline layer and about the thinnest derma; the back has the thickest derma and the thinnest epithelium. Therefore, full-thickness grafts from the back are not apt to grow, because the skin is too thick. If Dr. White's plan of using a full-thickness graft is followed, it will be best not to try to grow a full-thickness graft from the back. I had supposed Dr. White took most of his grafts from the abdomen, but he states that he has repeatedly taken them from the back, without the loss of the graft. There may be some difference between our interpretations of "thickness of skin," because if the heavy, full thickness of the skin on the back is used routinely, the graft is not likely to survive since it is too thick. This caution is added because Dr. White asked for an opinion on it. If one takes a thick split graft of about three-fourths thickness, or even one-half thickness, from high on the buttocks to put on an area similar to that on the foot shown by Dr. White, the operation can be done in about a tenth of the time it takes to do a full-thickness graft, and it may be a little better. We frequently use grafts on dirty areas, and, though we try to get them clean, they are sometimes hurried along. In such areas, we do not think the full-thickness grafts should be used, because there is a chance of loss. Split grafts are less apt to be lost, and, if they are, the loss is less important. Split grafts are rough for a time because, apparently, some of the glands get cut in two and may then secrete backward, leaving sebum collections that need evacuation; at least this is a way of explaining the roughness. The glands are kept empty to avoid infection and loss of surface, and, as these may be difficult to ascertain, it is best to keep close watch for several weeks. Dr. Brown, who developed the electro-dermatome, figured it out in a Japanese prison camp. He died after he came back to this country, and his wife is going on with the business. I am glad Dr. White mentioned the dermatome, as it seems to provide an excellent method of cutting a split graft. If one can use thick split grafts whenever possible, he is apt to have just as good results, if not better, than if full-thickness grafts were used routinely.

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[3] Brown, J. B.; McDowell, F., and Fryer, M. P.: Surgical Treatment of Radiation Burns, Surg., Gynec. & Obst. 88: 409-422 (May) 1949. Radiation Burns, Including Vocational and Atomic Exposures; Treatment, and Surgical Prevention of Chronic Lesions, Ann. Surg. 130: 593-603 (Oct.) 1949.

SEGMENTAL RESECTION FOR PULMONARY DISEASES

William S. Conklin, M.D.
and
Harry Westerberg, M.D., Portland, Ore.

Pulmonary resections have been performed successfully for many years, but until 1933 the techniques remained crude and the operations extremely hazardous according to present standards. Staged operations, use of tourniquets and clamps and destruction of lung tissue with cautery all resulted in prolonged morbidity and a mortality horrifying to the surgeon of today.

In 1933 Rienhoff[1] first described the technique of individual isolation and closure of the bronchus and blood vessels at the hilus. This technique, now used in practically all pulmonary resections, has done more than anything else to reduce the operative complications and mortality of these procedures. In 1932 Graham and his colleagues[2] collected a series of 212 lobectomies in which the operative mortality was 34 per cent. By 1947 Kay and associates[3] were able to report 258 consecutive cases of lobectomy for bronchiectasis with only one death, and Jones[4] presented a series of 52 pneumonectomies for bronchogenic carcinoma with only two deaths, surgical mortalities of 0.4 per cent and 4 per cent respectively. Advances in anesthesia, improved preoperative and postoperative care, introduction of antibiotics and the increased experience of thoracic surgeons have also helped lower the operative mortality. It is now believed that the over-all operative mortality for lobectomy is less than 5 per cent and that that for pneumonectomy is well below 20 per cent.

Resection for pulmonary disease does not necessarily require that one or more lobes of the lung be removed in their entirety. Certain lesions can be resected locally by enucleation (fig. 4) or by removing a peripheral wedge-shaped portion of the lung (partial lobectomy). But the indications for such surgery are rare, since the lesions must be peripheral and localized. Such procedures are not suitable for most lesions requiring resection, even though much of the lobe is not involved, since the disease is likely to extend centrally toward the hilus.

Segmental resection, the most recent technical advance in pulmonary resection, resulted from the desire to conserve as much normal lung tissue as possible in cases of bronchiectasis with multilobar involvement. Specifically, the problem was what to do about bronchiectasis in the lingula of the upper lobe of the left lung, so commonly present when there is bronchiectasis in the lower lobe of the left lung. The alternatives formerly available were to resect only the lower lobe, in which case the patient still had bronchiectasis; to remove the entire lung, in which case a great deal of valuable, uninvolved lung would be sacrificed, or to remove the lower lobe and amputate the lingula distal to a clamp applied near the hilus. The latter was usually unsatisfactory due to failure to eradicate the pathological condition and because of the frequency of postoperative complications. The problem was solved by Churchill and Belsey,[5] who appreciated the segmental nature of pulmonary anatomy and demonstrated that the lingula could be dissected completely from the remainder of the upper lobe by dividing the lingular branches of the bronchus and pulmonary artery at their origin. Using the same technique, they also resected the basal segments of the lower lobe leaving the superior division.

It has long been evident that it is not entirely accurate to describe the right lung as having three separate lobes, the left lung two. The fissures which divide these conventionally described lobes one from the other are often incomplete, rudimentary or entirely absent. Particularly is this true of the transverse fissure between the upper and middle lobes of the right lung. Likewise, it is not uncommon to find a rudimentary or even a complete fissure separating one of the conventional lobes into divisions. Such fissures are found most often between the lingula and the remainder of the upper lobe of the left lung and between the superior portion of either lower lobe and its base. Nelson[6] described each lung as possessing four basic parts or "lobes": upper, middle, dorsal and lower. Further study of the anatomic subdivisions of the lung, based on the work of Goldman,[7] Foster-Carter,[8] Brock,[9] Jackson and Huber,[10] Boyden[11] and

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[1] Rienhoff, W. F., Jr.: Pneumonectomy: *A Preliminary Report of the Operative Technique in 2 Successful Cases,* Bull. Johns Hopkins Hosp. **53**: 390 (Dec.) 1933.

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[3] Kay, E. B.; Meade, R. H., and Hughes, F. A., Jr.: Surgical Treatment of Bronchiectasis, Ann. Int. Med. **26**: 1 (Jan.) 1947.

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[5] Churchill, E. D., and Belsey, R.: Segmental Pneumonectomy in Bronchiectasis: *The Lingula Segment of the Left Upper Lobe,* Ann. Surg. **109**: 481 (April) 1939.

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[7] Goldman, A., quoted by Churchill, E. D.: Resection of the Lung, Surgery **8**: 979 (Dec.) 1940.

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[9] Brock, R. C.: *The Anatomy of the Bronchial Tree with Special Reference to the Surgery of Lung Abscess,* London, Oxford University Press, 1946.

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others, has resulted in the recognition of 18 bronchopulmonary segments, 10 on the right and eight on the left. The nomenclature proposed by Jackson and Huber (see drawing, page 700, in Kent[12]) has received official recognition by the American Association for Thoracic Surgery and is now widely accepted.

Each bronchopulmonary segment has its own bronchial and vascular components. The segments are separated by a relatively avascular plane, as are "fused" lobes between which the interlobar fissure is incomplete or absent. Intersegmental veins are the only important structures generally found in this plane, and their importance will be referred to later. Subsegments, located more peripherally, with similar bronchovascular components and planes of separation, are also recognized, though their anatomic arrangements are more variable.

The importance of conserving as much functioning lung tissue as possible when performing resections must be emphasized. It is particularly essential when respiratory reserve is limited by disease or previous surgery, or when bilateral resection is contemplated. Nonresected portions of a lung also have tremendous space filling value even when they contribute little to respiratory function. They permit the early filling and obliteration of the pleural cavity, which reduces the incidence of postoperative empyema or reduces the extent of an empyema should one occur. Furthermore, the smaller the volume of lung removed the less overdistention and resultant loss of function that will follow in the portions of the same and the contralateral lungs that are conserved.

Since the original report of Churchill and Belsey in 1939 several authors, notably Clagett and Deterling,[13] Kent and Blades,[14] Blades,[15] Overholt and associates,[16] Ramsay,[17] and Chamberlain and Ryan,[18] have offered modifications and improvements in the technique of segmental resection. They have shown that the techniques of segmental resection are applicable to all bronchopulmonary segments, singly or in groups, and to subsegments; and also that indications for segmental resection exist in diseases other than bronchiectasis.

INDICATIONS

Segmental pulmonary resection has been used most widely in cases of bronchiectasis. Since complications after segmental resection have tended to be more frequent than those after resection of an entire lobe with well developed fissures, it cannot be stated categorically that segmental resection is the procedure of choice in every instance in which it may appear applicable. When most of a lobe is involved in a disease process such as bronchiectasis it may be preferable to resect the entire lobe rather than to assume the added risk of trying to save an uninvolved segment that will contribute little to space filling and to function.

Application of segmental resection to bronchiectasis is dependent on preoperative bronchographic studies, filling all possible segments with iodized oil, and it is based on the assumption that adequate bronchography will determine the entire extent of the disease process. Studies reported by Moore and his colleagues[19] indicate that advanced pathological changes may be present in segments that show no evidence of bronchiectasis roentgenographically when they adjoin segments that do. Whether the less advanced changes may yet be reversible or are likely to be progressive has not been established. We have in one case, as has Kergin[20] in four, found bronchiectasis in the nonresected superior division of a lower lobe considered normal prior to resection of the basal segments. This required another operation for removal of the remaining superior segment. Further experience may show that segmental pulmonary resection should be applied with caution in cases of chronic suppurative disease, that it should be reserved (except insofar as the lingula is concerned) primarily for bilateral cases wherein maximum conservation of lung tissue is essential (fig. 5).

Segmental resection is applicable in types of chronic suppurative disease other than bronchiectasis, including some cases of lung abscess, infected lung cyst, empyema with bronchopleural fistula and extrapulmonary cyst with bronchocystic fistula and secondary suppuration.

In pulmonary tuberculosis segmental resection is finding wider applicability as the hazards are more readily avoided or controlled. It is impossible at present to itemize the indications for segmental resection in pulmonary tuberculosis. Indications for lobectomy and pneumonectomy have come to be fairly well accepted in the past few years. In general, those for segmental resection will include the same types of tuberculous pathological change, but selection of cases should be much more rigid until it may be shown that the risk is no greater, the results as good. Segmental resection, in the meantime, should receive special consideration in patients for whom maximum conservation of pulmonary function and volume is important or obligatory, e. g., those who have had previous collapse therapy or resection (figs. 4, 6 and 7) and others with distinctly reduced respiratory function. We have also performed segmental resections when localized caseous disease was found incidental to performing a pulmonary decortication for nonexpandable lung under a pneumothorax or tuberculous empyema. In seven of our series segmental resection was performed after previous thoracoplasty on the same side had failed to control the disease. When persistent upper lobe cavitation, after thoracoplasty, requires resection gross involvement may be found in the superior division of the lower lobe. We have sometimes considered it best to resect this segment along with the upper, and perhaps the middle, lobe, conserving the basal segments for space filling if they were not significantly involved (fig. 7).

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[12] Kent, E. M.: The Surgical Importance of the Anatomical Distribution of the Pulmonary Segments, Am. Rev. Tuberc. **60**: 699-705 (Dec.) 1949.

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[16] (*a*) Overholt, R. H., and Langer, L.: A New Technique for Pulmonary Segmental Resection, Surg., Gynec. & Obst. **84**: 257 (March) 1947. (*b*) Overholt, R. H.; Betts, R. H., and Woods, F. M.: Multiple Segmental Resection in the Treatment of Bronchiectasis, Dis. of Chest **13**: 583 (Nov.) 1947. (*c*) Overholt, R. H.; Woods, F. M., and Ramsay, B.: Segmental Pulmonary Resection, J. Thoracic Surg. **19**: 207 (Feb.) 1950.

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In no case of pulmonary tuberculosis can it be assumed that all unstable tuberculous lung lesions are being eradicated by pulmonary resection. The other lung also harbors disease that may not be clinically demonstrable. Resection, when elected, should be directed toward those lesions that have failed to respond to, or that are unlikely to be controlled by, less radical procedures and those in which control by other methods would involve very much greater and excessive permanent functional loss. There has been a tendency to resect whole lobes or lungs simply because the tuberculous lesions demonstrable by x-ray or exploration are not localized. However, it seems reasonable that lesions that require resection may be resected segmentally (or even locally in rare instances), and that remaining lesions may heal, as they were wont to do before excisional therapy came into wider use, with the aid of other available measures.

Streptomycin and paraaminosalicylate have helped greatly in making pulmonary resection the procedure of choice in many cases of pulmonary tuberculosis. We use them routinely for variable periods before and after surgery, and it is generally accepted that they have gone far toward eliminating the serious complications that occurred too often before they were available. Resection still should not be entertained as an optional type of treatment in pulmonary tuberculosis. But, it has been established as a type of therapy that in some cases offers the only prospect of cure.

Segmental resection has been used also in certain patients with mycotic lung disease (coccidioidomycosis).[21] It may be indicated in spontaneous pneumothorax,[22] localized emphysema or cystic disease with or without a fistula,[23] pulmonary arteriovenous aneurysm, broncholithiasis,[24] a foreign body in the bronchus and lung trauma. In bronchopulmonary neoplasia, whether benign or malignant, subtotal resection of a lobe or lung is rarely advisable. It may be considered for benign tumors, including hamartoma, and possibly for metastatic malignancy.

TECHNICAL CONSIDERATIONS

The preoperative preparation, anesthesia and postoperative management of patients undergoing segmental resection are essentially the same as for patients undergoing lobectomy. They will not be discussed in detail here.

It would appear that Overholt and associates [16c] have devoted the most time, thought and effort to developing and expounding a standard technique for segmental pulmonary resection. The following points that they have emphasized deserve special mention: (1) The segmental artery, bronchus and vein (if present) should first be isolated at the hilus; (2) intersegmental veins should be identified and preserved; (3) application of clamps across lung tissue should be avoided, and (4) an attempt to cover the raw lung surfaces remaining after segmental resection by bringing together the edges of the visceral pleura is unnecessary and generally inadvisable, since it diminishes lung volume and function by constricting a portion of the lung. The technique that we are using, and which incorporates all the above points, will be described. It has not been altered appreciably since January 1946. Prior to that clamps were placed across lung tissue, after division of bronchus and artery, in five of the cases reported here. The reader is referred to figures 1, 2 and 3, which illustrate the anatomy and the technique employed in resection of the superior segment of the lower lobe of the left lung.

Dissection of the lung segment or segments to be removed is begun near the hilus after identifying the bronchus by palpation. When the segmental artery and bronchus have been exposed the latter is isolated and temporarily occluded while the lung is deflated. The anesthetist is then asked to increase the intratracheal pressure, and the portion of the lung supplied by the occluded bronchus will usually remain collapsed while the remainder of the lung becomes aereated. Thus the segment or segments supplied by the occluded bronchus can be delineated with accuracy. Sometimes occlusion of a bronchus fails to prevent inflation of the lung beyond, since the anesthetic gases may enter it via interalveolar communications (pores of Kohn) with adjoining segments. However, this is not likely to occur when there is extensive pathological change present. When it does occur delineation may be possible by the reverse procedure, i. e., the lung distal to the occluded bronchus may remain aereated when adjoining segments are al-

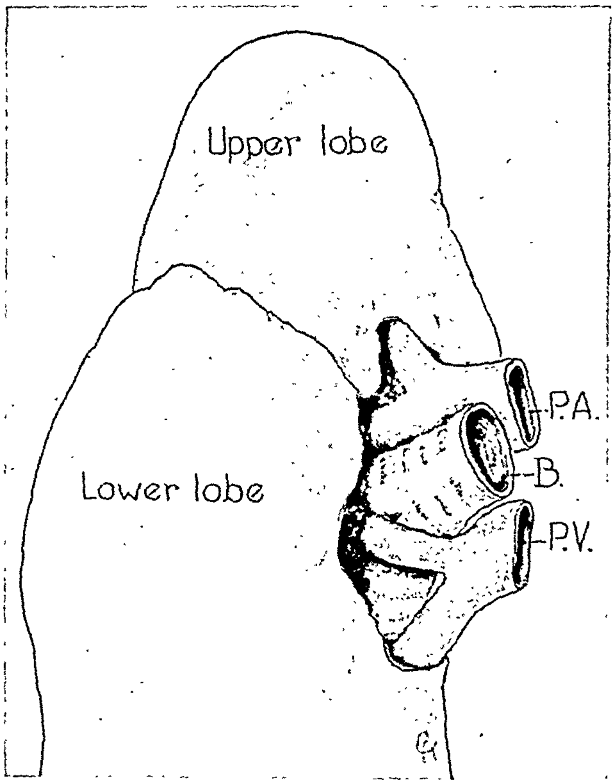

Fig. 1.—Drawing of the left lung showing the posterior view of the hilar anatomy.

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[23] Dugan, D. J., and Samson, P. C.: The Surgical Treatment of Giant Emphysematous Blebs and Pulmonary Tension Cysts, J. Thoracic Surg. 20: 729 (Nov.) 1950.

[24] Schmidt, H. W.; Clagett, O. T., and McDonald, J. R.: Broncholithiasis, J. Thoracic Surg. 19: 226 (Feb.) 1950.

others, has resulted in the recognition of 18 bronchopulmonary segments, 10 on the right and eight on the left. The nomenclature proposed by Jackson and Huber (see drawing, page 700, in Kent[12]) has received official recognition by the American Association for Thoracic Surgery and is now widely accepted.

Each bronchopulmonary segment has its own bronchial and vascular components. The segments are separated by a relatively avascular plane, as are "fused" lobes between which the interlobar fissure is incomplete or absent. Intersegmental veins are the only important structures generally found in this plane, and their importance will be referred to later. Subsegments, located more peripherally, with similar bronchovascular components and planes of separation, are also recognized, though their anatomic arrangements are more variable.

The importance of conserving as much functioning lung tissue as possible when performing resections must be emphasized. It is particularly essential when respiratory reserve is limited by disease or previous surgery, or when bilateral resection is contemplated. Nonresected portions of a lung also have tremendous space filling value even when they contribute little to respiratory function. They permit the early filling and obliteration of the pleural cavity, which reduces the incidence of postoperative empyema or reduces the extent of an empyema should one occur. Furthermore, the smaller the volume of lung removed the less overdistention and resultant loss of function that will follow in the portions of the same and the contralateral lungs that are conserved.

Since the original report of Churchill and Belsey in 1939 several authors, notably Clagett and Deterling,[13] Kent and Blades,[14] Blades,[15] Overholt and associates,[16] Ramsay,[17] and Chamberlain and Ryan,[18] have offered modifications and improvements in the technique of segmental resection. They have shown that the techniques of segmental resection are applicable to all bronchopulmonary segments, singly or in groups, and to subsegments; and also that indications for segmental resection exist in diseases other than bronchiectasis.

INDICATIONS

Segmental pulmonary resection has been used most widely in cases of bronchiectasis. Since complications after segmental resection have tended to be more frequent than those after resection of an entire lobe with well developed fissures, it cannot be stated categorically that segmental resection is the procedure of choice in every instance in which it may appear applicable. When most of a lobe is involved in a disease process such as bronchiectasis it may be preferable to resect the entire lobe rather than to assume the added risk of trying to save an uninvolved segment that will contribute little to space filling and to function.

Application of segmental resection to bronchiectasis is dependent on preoperative bronchographic studies, filling all possible segments with iodized oil, and it is based on the assumption that adequate bronchography will determine the entire extent of the disease process. Studies reported by Moore and his colleagues[19] indicate that advanced pathological changes may be present in segments that show no evidence of bronchiectasis roentgenographically when they adjoin segments that do. Whether the less advanced changes may yet be reversible or are likely to be progressive has not been established. We have in one case, as has Kergin[20] in four, found bronchiectasis in the nonresected superior division of a lower lobe considered normal prior to resection of the basal segments. This required another operation for removal of the remaining superior segment. Further experience may show that segmental pulmonary resection should be applied with caution in cases of chronic suppurative disease, that it should be reserved (except insofar as the lingula is concerned) primarily for bilateral cases wherein maximum conservation of lung tissue is essential (fig. 5).

Segmental resection is applicable in types of chronic suppurative disease other than bronchiectasis, including some cases of lung abscess, infected lung cyst, empyema with bronchopleural fistula and extrapulmonary cyst with bronchocystic fistula and secondary suppuration.

In pulmonary tuberculosis segmental resection is finding wider applicability as the hazards are more readily avoided or controlled. It is impossible at present to itemize the indications for segmental resection in pulmonary tuberculosis. Indications for lobectomy and pneumonectomy have come to be fairly well accepted in the past few years. In general, those for segmental resection will include the same types of tuberculous pathological change, but selection of cases should be much more rigid until it may be shown that the risk is no greater, the results as good. Segmental resection, in the meantime, should receive special consideration in patients for whom maximum conservation of pulmonary function and volume is important or obligatory, e. g., those who have had previous collapse therapy or resection (figs. 4, 6 and 7) and others with distinctly reduced respiratory function. We have also performed segmental resections when localized caseous disease was found incidental to performing a pulmonary decortication for nonexpandable lung under a pneumothorax or tuberculous empyema. In seven of our series segmental resection was performed after previous thoracoplasty on the same side had failed to control the disease. When persistent upper lobe cavitation, after thoracoplasty, requires resection gross involvement may be found in the superior division of the lower lobe. We have sometimes considered it best to resect this segment along with the upper, and perhaps the middle, lobe, conserving the basal segments for space filling if they were not significantly involved (fig. 7).

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[12] Kent, E. M.: The Surgical Importance of the Anatomical Distribution of the Pulmonary Segments, Am. Rev. Tuberc. **60**: 699-705 (Dec.) 1949.

[13] Clagett, O. T., and Deterling, R. A., Jr.: A Technique for Segmental Pulmonary Resection with Particular Reference to Lingulectomy, J. Thoracic Surg. **15**: 227 (Aug.) 1946.

[14] Kent, E. M., and Blades, B.: The Anatomic Approach to Pulmonary Resection, Ann. Surg. **116**: 782 (Nov.) 1942.

[15] Blades, B.: Conservation of Lung Tissue by Partial Lobectomy, Ann. Surg. **118**: 353 (Sept.) 1943.

[16] (*a*) Overholt, R. H., and Langer, L.: A New Technique for Pulmonary Segmental Resection, Surg., Gynec. & Obst. **84**: 257 (March) 1947. (*b*) Overholt, R. H.; Betts, R. H., and Woods, F. M.: Multiple Segmental Resection in the Treatment of Bronchiectasis, Dis. of Chest **13**: 583 (Nov.) 1947. (*c*) Overholt, R. H.; Woods, F. M., and Ramsay, B.: Segmental Pulmonary Resection, J. Thoracic Surg. **19**: 207 (Feb.) 1950.

[17] Ramsay, B. H.: The Anatomical Guide to the Intersegmental Plane, Surgery **25**: 533 (April) 1949.

[18] Chamberlain, J. M., and Ryan, T. C.: Segmental Resection in Pulmonary Diseases, J. Thoracic Surg. **19**: 199 (Feb.) 1950.

[19] Moore, J. R.; Kobernick, S. D., and Wiglesworth, F. W.: Bronchiectasis: A Study of the Segmental Distribution of the Pathologic Lesions, Surg., Gynec. & Obst. **89**: 145 (Aug.) 1949.

[20] Kergin, F. G.: The Surgical Treatment of Bilateral Bronchiectasis, J. Thoracic Surg. **19**: 257 (Feb.) 1950.

In no case of pulmonary tuberculosis can it be assumed that all unstable tuberculous lung lesions are being eradicated by pulmonary resection. The other lung also harbors disease that may not be clinically demonstrable. Resection, when elected, should be directed toward those lesions that have failed to respond to, or that are unlikely to be controlled by, less radical procedures and those in which control by other methods would involve very much greater and excessive permanent functional loss. There has been a tendency to resect whole lobes or lungs simply because the tuberculous lesions demonstrable by x-ray or exploration are not localized. However, it seems reasonable that lesions that require resection may be resected segmentally (or even locally in rare instances), and that remaining lesions may heal, as they were wont to do before excisional therapy came into wider use, with the aid of other available measures.

Streptomycin and paraaminosalicylate have helped greatly in making pulmonary resection the procedure of choice in many cases of pulmonary tuberculosis. We use them routinely for variable periods before and after surgery, and it is generally accepted that they have gone far toward eliminating the serious complications that occurred too often before they were available. Resection still should not be entertained as an optional type of treatment in pulmonary tuberculosis. But, it has been established as a type of therapy that in some cases offers the only prospect of cure.

Segmental resection has been used also in certain patients with mycotic lung disease (coccidioidomycosis).[21] It may be indicated in spontaneous pneumothorax,[22] localized emphysema or cystic disease with or without a fistula,[23] pulmonary arteriovenous aneurysm, broncholithiasis,[24] a foreign body in the bronchus and lung trauma. In bronchopulmonary neoplasia, whether benign or malignant, subtotal resection of a lobe or lung is rarely advisable. It may be considered for benign tumors, including hamartoma, and possibly for metastatic malignancy.

TECHNICAL CONSIDERATIONS

The preoperative preparation, anesthesia and postoperative management of patients undergoing segmental resection are essentially the same as for patients undergoing lobectomy. They will not be discussed in detail here.

It would appear that Overholt and associates [16c] have devoted the most time, thought and effort to developing and expounding a standard technique for segmental pulmonary resection. The following points that they have emphasized deserve special mention: (1) The segmental artery, bronchus and vein (if present) should first be isolated at the hilus; (2) intersegmental veins should be identified and preserved; (3) application of clamps across lung tissue should be avoided, and (4) an attempt to cover the raw lung surfaces remaining after segmental resection by bringing together the edges of the visceral pleura is unnecessary and generally inadvisable, since it diminishes lung volume and function by constricting a portion of the lung. The technique that we are using, and which incorporates all the above points, will be described. It has not been altered appreciably since January 1946. Prior to that clamps were placed across lung tissue, after division of bronchus and artery, in five of the cases reported here. The reader is referred to figures 1, 2 and 3, which illustrate the anatomy and the technique employed in resection of the superior segment of the lower lobe of the left lung.

Dissection of the lung segment or segments to be removed is begun near the hilus after identifying the bronchus by palpation. When the segmental artery and bronchus have been exposed the latter is isolated and temporarily occluded while the lung is deflated. The anesthetist is then asked to increase the intratracheal pressure, and the portion of the lung supplied by the occluded bronchus will usually remain collapsed while the remainder of the lung becomes aereated. Thus the segment or segments supplied by the occluded bronchus can be delineated with accuracy. Sometimes occlusion of a bronchus fails to prevent inflation of the lung beyond, since the anesthetic gases may enter it via interalveolar communications (pores of Kohn) with adjoining segments. However, this is not likely to occur when there is extensive pathological change present. When it does occur delineation may be possible by the reverse procedure, i. e., the lung distal to the occluded bronchus may remain aereated when adjoining segments are al-

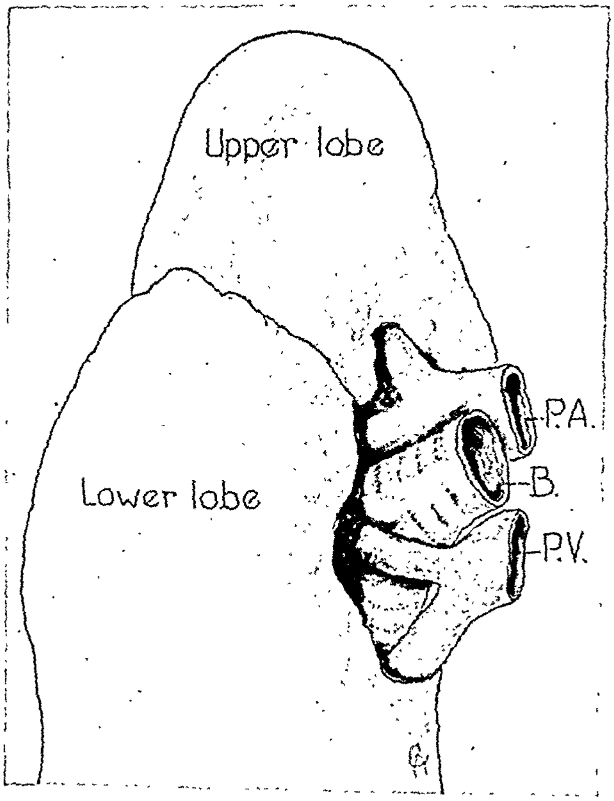

Fig. 1.—Drawing of the left lung showing the posterior view of the hilar anatomy.

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[21] Cotton, B. H., and Birsner, J. W.: Surgical Treatment in Pulmonary Coccidioidomycosis, J. Thoracic Surg. **20**: 429 (Sept.) 1950.

[22] Brewer, L. A., III; Dolley, F. S., and Evans, B. H.: The Surgical Management of Chronic "Spontaneous" Pneumothorax: Report on Etiological Factors and Surgical Treatment Employed in 15 Cases, J. Thoracic Surg. **19**: 167 (Feb.) 1950.

[23] Dugan, D. J., and Samson, P. C.: The Surgical Treatment of Giant Emphysematous Blebs and Pulmonary Tension Cysts, J. Thoracic Surg. **20**: 729 (Nov.) 1950.

[24] Schmidt, H. W.; Clagett, O. T., and McDonald, J. R.: Broncholithiasis, J. Thoracic Surg. **19**: 226 (Feb.) 1950.

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It is advisable to occlude the bronchus as early as possible in order to entrap and prevent the spillage of infected secretions. The bronchus can then be divided between clamps and by gentle traction on the distal clamp the corresponding segmental artery, which parallels the bronchus, will be readily identified as it is placed on stretch. To improve exposure of the bronchus it is sometimes helpful to ligate and divide the segmental branch of the pulmonary artery first. As traction is maintained on the bronchus the intersegmental plane is developed by blunt finger dissection. When the intersegmental vein can be identified near the hilus it serves as an excellent guide to the plane of dissection. Segmental veins are ligated and divided as they are encountered. Intersegmental veins receive tributaries from the adjoining segment as well as from the segment to be removed. In order to avoid postoperative engorgement of nonresected adjoining segments, the intersegmental veins should be carefully preserved, dividing only tributaries from the segment that is removed.

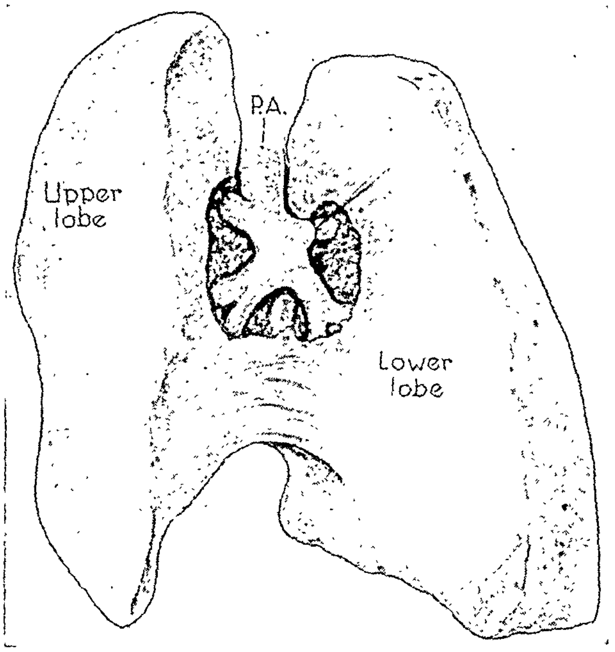

Fig. 2.—Drawing of the left lung showing the hilar anatomy with a dissection over the pulmonary artery at the base of the interlobar fissure. The branch of the pulmonary artery to the superior segment of the lower lobe of the left lung has been ligated.

As blunt dissection in the intersegmental plane is extended to the visceral pleura, the latter is divided as it is reached. If during dissection it is discovered that the disease process extends into an adjoining segment, it may prove advisable to resect the adjoining segment or a subsegment at the same time and according to the same technique. Occasionally a small extension into the periphery of an adjoining segment requires only local excision.

After segmental resection there generally will be small air leaks from the raw surface of the remainder of the lobe, though sometimes there are none at all. Most of these small leaks seal spontaneously before or soon after the operation is completed. If positive pressure anesthesia demonstrates vigorous bubbling from one or more sites on the raw surface of the expanding lung, such leaks should be controlled by clamping and ligation or by application of small mattress sutures of fine silk. Persistent bleeding points from torn tributaries of the intersegmental vein are likewise clamped with fine forceps and ligated.

Finally, the stump of the segmental bronchus is closed after ascertaining that it has been divided as close to its origin as possible so as to avoid leaving a blind bronchial pouch. For closure of a bronchial stump we prefer to use interrupted sutures of 0.017 cm. (0.007 in.) tantalum wire on atraumatic needles, believing that this material has the following advantages: (1) It is nonabsorbable and has tensile strength high in proportion to its fine size, and is thus likely to remain in place while healing occurs; (2) the nonreactive nature of the material and the small caliber of the needle perforations reduce local inflammatory reaction to a minimum; (3) cotton or silk sutures, by capillary attraction, may act like wicks, carrying infected secretions from the lumen of the bronchus deep into the tissues, increasing the danger of inflammation, ulceration and rupture of the stump, and (4) the tantalum sutures are clearly visualized on postoperative roentgenograms, thus making it possible to demonstrate whether or not the suture line remains intact. The tantalum wire sutures are placed before removing the clamp from the stump of the bronchus. While an assistant supports them to maintain closure of the stump, the sutures are individually tied. With one or more of these same sutures, or with fine atraumatic chromic surgical gut sutures, the stump is then buried by sewing onto it a flap of pleura, lymph nodes or other available tissue.

When resecting part of a lung that is collapsed, or which previously has been collapsed, by an artificial pneumothorax, pleural effusion or empyema, a constricting fibrinous membrane is likely to be found over the surface of the lung and, not infrequently, the lung surface is found to be deeply infolded. In such circumstances it is important to decorticate thoroughly all portions of the lung that are to be preserved. By separating adhesions between opposing surfaces of visceral pleura the infolded portion of the lung can be released and considerable lung volume regained.

Generally, in segmental resections the nonresected portions of the lung will now have sufficient volume to permit postoperative filling and obliteration of the pleural cavity without excessive compensatory changes having to occur. Occasionally, however, it may seem advisable to decrease the size of the thorax by performing a partial thoracoplasty. Thoracoplasty in conjunction with resection is most frequently indicated in patients with pulmonary tuberculosis and when the volume of the lung has been considerably reduced by disease and by resection, especially when all or part of an upper lobe has been resected. Thoracoplasties generally have been performed two or more weeks after the resection in these cases. If a thoracoplasty appears advisable we prefer to perform it immediately after the resection, and the following modification in our operative approach has proved advantageous.

Usually we perform a thoracotomy by resecting a long segment of the fifth, sixth, or seventh rib, incising through its periosteal bed. When a thoracoplasty is planned to follow a resection, we first resect only a short posterior segment of the fourth rib and carry the thoracotomy incision from this rib bed anteriorly along the fourth intercostal space. If additional rib resection is advisable to improve exposure the posterior one third of the third rib is removed. On completion of the lung resection all or most of the first and second ribs are easily resected; and the extent of the thoracoplasty can be adjusted to the needs of the case without significantly prolonging the operation. But, if the operative procedure has been long or if the patient's condition is not entirely satisfactory the rest of the thoracoplasty is deferred and completed at a later date. We do not consider it wise to include more than five ribs in a thoracoplasty performed immediately after resection. When a more extensive thoracoplasty is required additional rib segments can be resected, generally under local anesthesia, two or three weeks later. We have performed a five rib thoracoplasty immediately after segmental resection in one case and four rib thoracoplasties, according to this technique, in three. In one of the latter segments of two additional ribs were resected later. In a larger series of patients we have performed thoracoplasty immediately after lobectomy or pneumonectomy, and in only one case has the thoracoplasty appeared to have had a deleterious effect on the patient's postoperative course. In this instance an eight rib throacoplasty was performed immediately after a pneumonectomy, and temporary respiratory embarrassment resulted from excessive paradoxical movement of the chest wall.

Before completion of the operation it sometimes appears desirable to prevent postoperative dislocation and torsion of remaining lung segments by placing a few interrupted surgical gut sutures across anatomic or artificially developed fissures in order that the normal relationships between lung segments will be maintained. It is our practice then to irrigate and cleanse the pleural cavity, to place drainage tubes (if they are to be used) and to introduce antibiotic solutions before the chest wall is closed. Before closure it is also important that the anesthetist expand the remaining portion of the lung in order to be sure that all segments become well aereated. During closure lung expansion is maintained by the anesthetist and by means of suction applied to an intercostal drainage tube or to a catheter introduced through the wound and withdrawn shortly before closure is complete.

Contrary to accepted principles, we have not used drainage tubes routinely in cases of subtotal pneumonectomy. It has been our impression that, after segmental resection, patients in whom some air, blood and exudate are allowed to accumulate around a partially collapsed remaining portion of the lung are less likely to have persistent air leaks and fistula formation. Deposition of fibrin over the bronchial stumps and raw surfaces of a partially collapsed lung may promote early sealing and decrease the danger of fistulas. In some of the patients managed in this way no thoracenteses were required, because there was no significant accumulation of air or fluid in the pleural cavity. In most patients, however, one or more thoracenteses have been performed, beginning on the first or second postoperative day. Optimum lung expansion appears to have been obtained as regularly in these patients as in those in whom pleural drainage has been instituted at the time of operation. In most of our cases we have used one or two intercostal drainage tubes, connecting these to water seal bottles. The tubes are not removed until all leakage of air has ceased and drainage has become serous in character and negligible in quantity (usually within 48 to 72 hours). Motor suction has seldom been applied to these tubes except at the time of their removal. We have omitted drainage tubes in 10 of 50 segmental resections, and in none of these has postoperative bronchopleural fistula or empyema developed. It is true, however, that tubes have been omitted only when very little air leakage, bleeding and exudation were anticipated, which no doubt contributed to the favorable results in this small group.

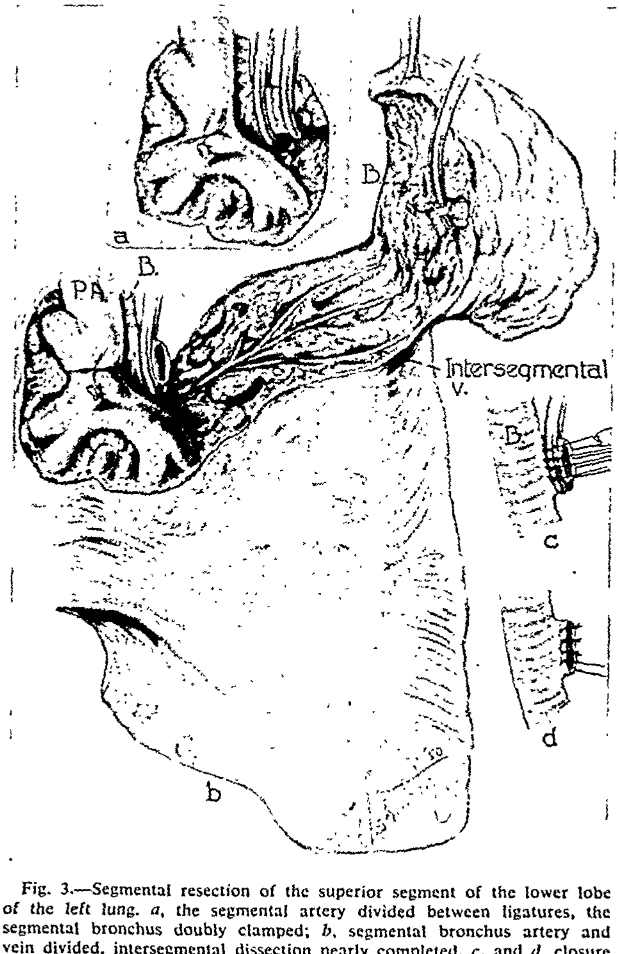

Fig. 3.—Segmental resection of the superior segment of the lower lobe of the left lung. *a*, the segmental artery divided between ligatures, the segmental bronchus doubly clamped; *b*, segmental bronchus artery and vein divided, intersegmental dissection nearly completed, *c*. and *d*, closure of the bronchial stump with interrupted tantalum wire sutures.

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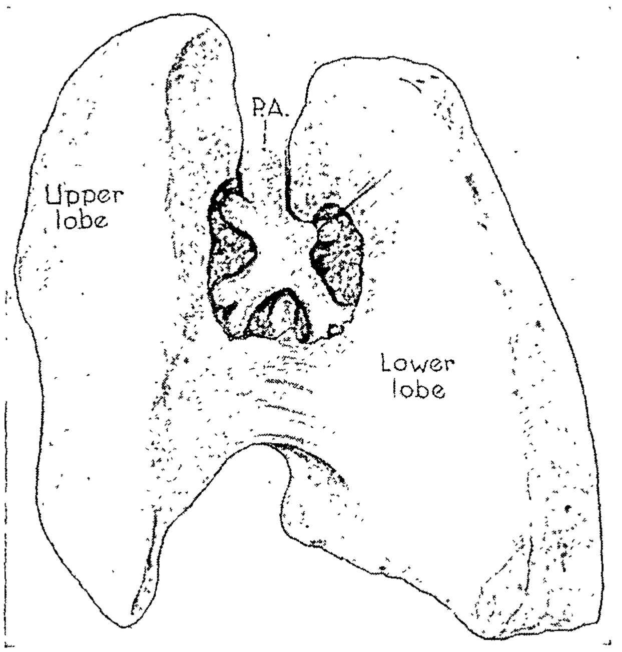

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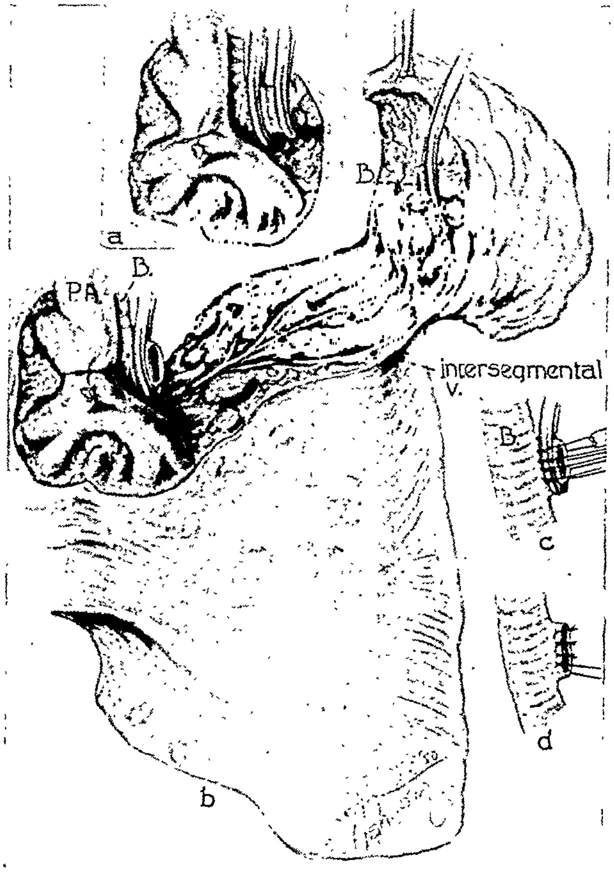

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CLINICAL MATERIAL

We have performed 50 segmental resections, either alone or in conjunction with lobectomy, in 48 patients since 1944. The indication for surgery was pulmonary tuberculosis in 25, bronchiectasis in 17, chronic lung abscess in two and, in one each, the following: teratodermoid cyst with bronchocystic communication and secondary suppuration, bronchopulmonary suppuration secondary to a foreign body (tooth) in a bronchus, ruptured emphysematous bleb with persistent fistula and pulmonary arteriovenous aneurysm. In two of the patients with bronchiectasis bilateral segmental resections were performed. We have used the term "segmental resection" to include removal of the lingula and of a superior segment of the lower lobe, although it has been suggested [25] that these portions of the lung should be regarded as individual lobes. Actually, the absence of well defined fissures makes the technical aspects of the surgery and the hazards identical with those encountered when resecting other bronchopulmonary segments.

COMPLICATIONS

Reluctance to perform segmental resection has been engendered by the fact that postoperative complications, especially bronchopleural fistula and empyema, occur more frequently than after lobar resections. It is almost inevitable that these complications will occur more frequently when a part of a lobe is removed, since there is left a raw lung surface that may be infected and that may present leakage from small openings in direct communication with bronchi. Obviously, greater contamination of the operative field is to be expected. Overholt and his colleagues [16] have shown that the incidence of these complications after segmental resection has been markedly reduced as the techniques have been improved and standardized. Furthermore, these complications generally respond quite promptly to proper management. While the immediate postoperative morbidity tends to be increased, this disadvantage appears to be offset by preservation of maximum lung volume and function and by the fact that segmental resection may offer some prospect of eradicating the disease in certain patients (particularly those with bilateral bronchiectasis) who otherwise would not be candidates for surgical cure, because they could not tolerate resection of all of each lobe that is involved. Other complications which may or may not occur more frequently after segmental resection than after lobectomy include engorgement of adjoining pulmonary segments (particularly when the intersegmental vein is interrupted [26]), incomplete or delayed re-expansion of the remainder of the lung, homolateral or contralateral spread of infection (particularly tuberculous) and atelectasis. Obstructive atelectasis, as pointed out by Churchill,[5] may be due to inflammatory edema in a bronchus adjoining one that has been amputated. Avoiding trauma and the use of tantalum wire sutures may reduce the incidence of this complication. Complications encountered in our series of 50 segmental resections are summarized in the table.

Summary of Segmental Pulmonary Resections

			Complications		
	Number of Cases	Number of Operations	Broncho-*pleural* Fistula with Empyema	Miscellaneous	Death
Pulmonary tuberculosis	25	25	2	1 contralateral spread	1
Bronchiectasis..........	17	19	3	1 transient pulmonary insufficiency 1 lung abscess 1 atelectasis	0
Miscellaneous..........	6	6	0	0	
Total.................	48	50	5	4	1

CHRONIC SUPPURATIVE DISEASE

We have performed 23 segmental resections in 21 patients with chronic suppurative disease. In 19 of these operations (17 patients) the indication was bronchiectasis alone; in two the indication was chronic lung abscess with associated bronchiectasis; in one, secondarily infected teratodermoid cyst with a bronchocystic communication and associated chronic suppuration and bronchiectasis in the basal segments of the lower lobe of the right lung, and in another a tooth lodged in the posterior basal branch of the right lower lobe bronchus with secondary suppuration distal to the obstruction.

The 21 patients included 15 women and six men, and the age range was from 10 to 46 years. The 23 operations involved resection of 37 segments or groups of segments and one subsegment. Lobectomy was performed simultaneously in 10, bilobectomy in one. Entire lobes resected included the following: upper lobe of the right lung, two; middle lobe of the right lung, five; lower lobe of the right lung, one, and lower lobe of the left lung, four. While 12 of these patients had bilateral bronchiectasis, contralateral lobectomy or segmental resection has been performed, to date, in only three.

Bronchopleural fistula and empyema occurred in three patients in this group, each of whom had bilateral bronchiectasis. In two cases this complication followed a second operation, contralateral resection having been previously performed. Two of the three empyemas responded promptly to open drainage, with obliteration of the empyema space and closure of the fistula. The third is our most recent case, and open drainage is still being maintained. Atelectasis complicated the convalescence of one patient who would not, or could not, expel secretions voluntarily after surgery. This responded to bronchoscopic aspiration performed on three occasions. A small abscess (loculated empyema?) developed in the region of the remaining superior segment of the lower lobe of the left lung after resection of its basal segments along with the lingula. The lesion responded to antibiotic therapy alone.

All the patients with bronchiectasis herein reported are considered to have improved since their surgery, though at least nine still have bronchiectasis on the contralateral side. It is possible that patients with bronchiectasis who have had segmental resections are less likely to be relieved completely of their symptoms than those who have been considered good candidates for cure by lobectomy, particularly unilateral lobectomy. However, patients with severe bronchiectasis can be greatly improved, even if they cannot be cured, by elimi-

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25. Nelson.[6] Chamberlain and Ryan.[18]

26. Chamberlain and Ryan.[18] *Swan, H., and Mulligan, R. M.: Experimental Study of Ligation of Pulmonary Veins in Dog, J. Thoracic Surg.* **17**: 44 (Feb.) 1948.

nation of the more severely involved bronchopulmonary segments. Segmental resection makes rehabilitation available to many patients who formerly were not considered candidates for surgery because of the extent and multilobar distribution of their disease.

PULMONARY TUBERCULOSIS

Twenty-five segmental resections were performed on the same number of patients with pulmonary tuberculosis. There were 13 men and 12 women, their ages ranging from 15 to 58 years. Only once were separate segments resected at the same operation (as contrasted with 13 times in the bronchiectasis group). In one patient a large peripheral tuberculoma in the upper lobe of the right lung was enucleated after resection of the superior segment of the lower lobe of the right lung (fig. 4). While in bronchiectasis the lingula of the upper lobe of the left lung was the segment most often resected (13 times), in tuberculosis a superior segment of a lower lobe most often contained the offending lesion (on the right in 12 instances and on the left in six). A previous resection of the contralateral lower lobe had been performed in one. Homolateral lobectomy was performed at the time of segmental resection in eight, bilobectomy in three. Lobes resected included the upper lobe of the right lung in three, the upper and middle lobes of the right lung in three, the upper lobe of the left lung in four and the lower lobe of the left lung in one.

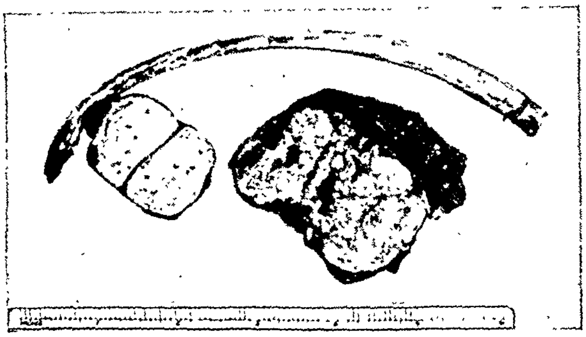

Fig. 4.—Surgical specimens illustrating minimal sacrifice of lung tissue by segmental resection and local excision in E.L., 34 year old diabetic woman with bilateral far advanced pulmonary tuberculosis who failed to have conversion of sputum after bilateral pneumothorax and who was shown to have persistent cavitation in the superior segment of the lower lobe of the right lung by laminagrams. After resection of the superior segment of the lower lobe containing a tuberculoma with central cavitation and enucleation of a subpleural tuberculoma of the upper lobe of the right lung, sputum became negative immediately. Specimen on left shows the incised enucleated tuberculoma of the upper lobe of the right lung; that on the right, the incised superior segment of the lower lobe of the right lung.

Bronchopleural fistula and empyema occurred in two patients after segmental resection for pulmonary tuberculosis. The first of these was a diabetic Negro with cavitation of the lower lobe of the left lung operated on in 1944 before streptomycin was available. Unsuspected tuberculous consolidation of the lingula was found; and this segment was resected, using clamps. A small empyema with a fistula developed, but the patient improved sufficiently to be discharged from the hospital with a negative sputum. However, he died 23 months later with progressive tuberculous disease. This is the only late death in the series. The second patient in whom a bronchopleural fistula and empyema developed had had a lingulectomy to remove a tension cavity that could not be controlled with artificial pneumothorax. Segmental resection was performed because there had been multiple cavities in the lower lobe of the right lung, and it was thought that contralateral resection might eventually be considered. The lingular cavity was extremely adherent to the bronchus passing to the remaining portion of the upper lobe of the left lung. The cavity was ruptured during the dissection, with gross contamination of the pleural cavity. Closed intercostal suction drainage was instituted with early improvement, and sputum conversion occurred; but, a contralateral upper lobe spread appeared after instillation of streptokinase into the small empyema space. While this recent patient is showing steady improvement with continued streptomycin and paraaminosalicylate therapy, her ultimate prognosis cannot be considered good.

Another complication encountered in the tuberculosis cases was severe, though temporary, pulmonary insufficiency. A 58 year old man had a constricting fibrinous membrane, secondary to a previous therapeutic pneumothorax, over the right lung. Decortication was first performed in the hope that pulmonary function might be improved prior to resection of a "tuberculoma" at the apex of the left lung. Improved function was not evidenced by bronchospirometric studies before and after decortication, though radiographically and subjectively the results were good. We proceeded with segmental resection of the apical-posterior segment of the upper lobe of the left lung, which contained a hard tuberculous mass with central caseation necrosis. For several days after surgery the patient appeared critical because of marked dyspnea. He improved gradually and was eventually discharged from the hospital in excellent

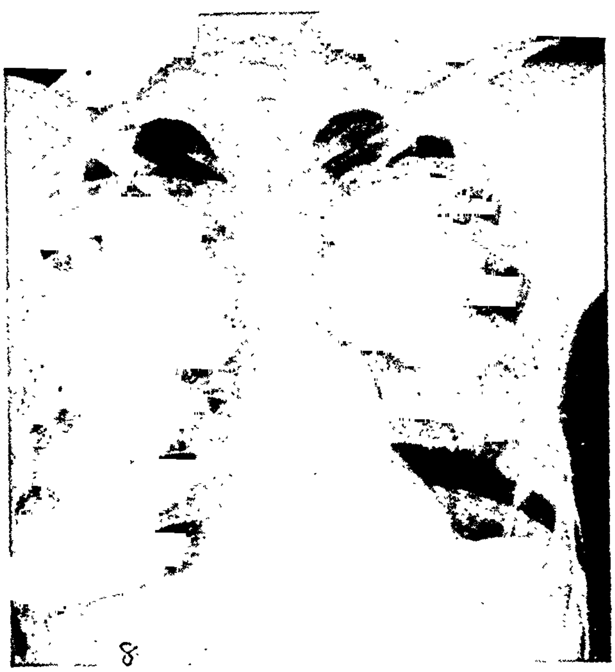

Fig. 5.—K. H., 16 year old boy with severe bilateral bronchiectasis. Chest film following resection of anterior segment of upper lobe of the right lung, the middle lobe of the right lung and the basal segments of the lower lobe of the right lung and later resection of the lingula of the upper lobe of the left lung and the basal segments of the lower lobe of the left lung. Small empyema with bronchopleural fistula following second operation responded promptly to tube drainage. Note tantalum wire sutures.

condition, able to tolerate moderate exertion without discomfort. His sputum was converted immediately after surgery and has remained so.

The only operative death in the 50 segmental resections we have performed occurred after resection of the superior division of a lower lobe of the left lung in a patient with pulmonary tuberculosis. This was an early case, in which clamps were placed across lung tissue to complete the resection. Death was ascribed at autopsy to pulmonary atelectasis, and it is thought that death might have been averted had more prompt and active therapy been administered by the staff. It is worthy of note that two of the four tuberculous patients who had postoperative complications were among the three early patients in whom clamps were used.

Chamberlain[27] has recently reported 75 segmental resections for pulmonary tuberculosis with three deaths and early sputum conversion in 87 per cent. In many of our patients segmental resection was performed, though the risk appeared great, because there seemed to be no alternative prospect of cure. Nevertheless, our only operative death occurred four and one half years ago, when the technique was admittedly poor, and only one of the living patients has not been definitely benefitted as a result of the surgery. In one case we resected only the superior division of the lower lobe of the right lung, because it contained a thick walled cavity, and because the upper lobe of the right lung was essentially free of disease, while the left lung showed considerable involvement. This patient had intermittently positive sputum for five months after his surgery (performed in 1945), after which his sputum remained negative. Only two other patients failed to show sputum conversion immediately after surgery. These are relatively recent cases. Two patients (fig. 6 and the late death) had prompt sputum conversion but became positive again after rather prolonged periods. Three (13 per cent) of the living patients have positive sputum at the present time, the remainder were negative at last report.

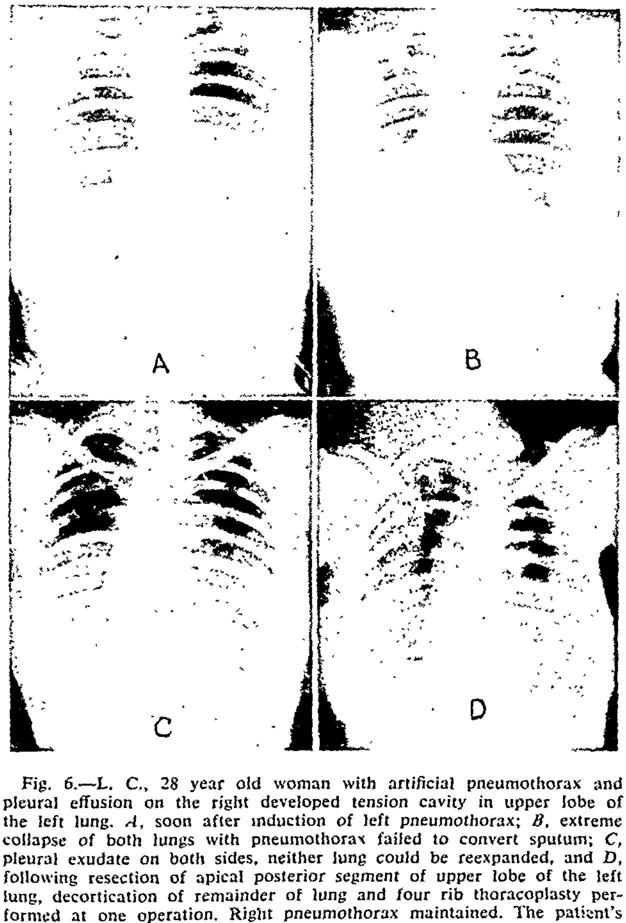

Fig. 6.—L. C., 28 year old woman with artificial pneumothorax and pleural effusion on the right developed tension cavity in upper lobe of the left lung. *A*, soon after induction of left pneumothorax; *B*, extreme collapse of both lungs with pneumothorax failed to convert sputum; *C*, pleural exudate on both sides, neither lung could be reexpanded, and *D*, following resection of apical posterior segment of upper lobe of the left lung, decortication of remainder of lung and four rib thoracoplasty performed at one operation. Right pneumothorax maintained. The patient's sputum converted immediately after surgery, but a recent specimen (about one year after surgery) was reported positive. A similar operative procedure may be performed on the right.

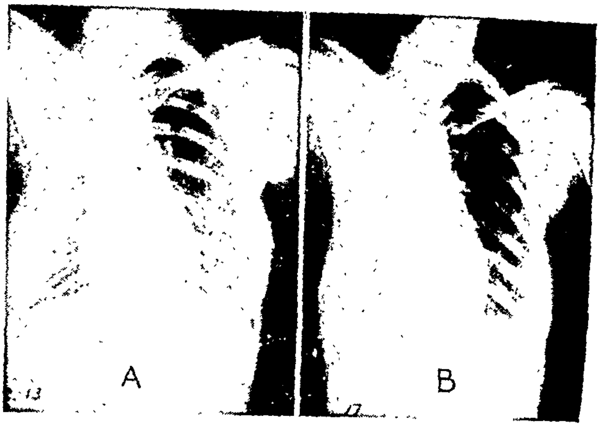

Fig. 7.—T. M., 21 year old woman with far advanced pulmonary tuberculosis whose early response to a nine rib thoracoplasty appeared good, with sputum conversion. *A*, cavity has appeared, opposite third anterior interspace, in superior division of lower lobe of the right lung; cavernostomy was performed and eventually plastic closure of a persistent bronchocutaneous fistula; sputum became intermittently positive and *B*, after resection of the upper lobe of the right lung, middle lobe of the right lung and superior division of lower lobe of the right lung. Sputum now remains negative. The small amount of lung tissue remaining on the right has been sufficient to fill the residual pleural space and prevent mediastinal displacement and over distention of the contralateral lung.

MISCELLANEOUS

We have performed six segmental resections on patients whose primary disease was other than bronchiectasis or tuberculosis, and in four of these, mentioned previously, suppurative disease provided the indication. One patient with a ruptured emphysematous bleb and persistent tension pneumothorax was found to have a

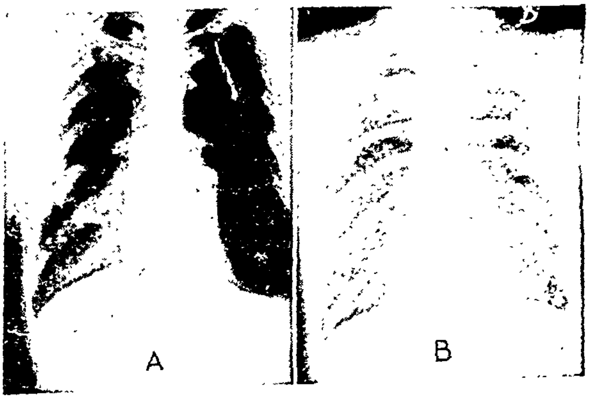

Fig. 8.—E. A., 58 year old man with persistent pneumothorax after rupture of emphysematous bleb (see text). *A*, chest X-ray before surgery, and *B*, after resection of apical-posterior segment of upper lobe of the left lung. There are large emphysematous blebs remaining in the upper lobe of the right lung, but patient is asymptomatic.

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27. Chamberlain, J. M., and Klopstock, R.: Further Experiences with Segmental Resection in Tuberculosis, J. Thoracic Surg. 20: 843 (Dec.) 1950.

large (1 cm.) tear in the bleb at thoracotomy. Resection of the apical-posterior segment of the upper lobe of the left lung, containing multiple blebs, gave an excellent result (fig. 8). The other segmental resection was for pulmonary arteriovenous aneurysm in the superior division of the lower lobe of the right lung. After resection, cyanosis, polycythemia and clubbing gradually disappeared. No complications occurred in the patients on whom we performed segmental resections in this miscellaneous group.

SUMMARY

The lungs are comprised of 18 bronchovascular units, or segments. These segments, where they do not border on fissures, are separated by planes that generally contain no important structures other than intersegmental veins. Dissection along these planes can be accomplished readily, and segments can be removed, singly or in groups, after division of the segmental bronchus, artery and vein (if present) at their origin. When performing segmental resections it is important to preserve the intersegmental veins with the nonresected adjoining segments.

Segmental resection is applicable in some types of bronchopulmonary disease wherein removal of the involved portions of the lung offers the only means for cure or for maximum palliation. Segmental resection is recommended for patients with such extensive involvement that lobar resections would result in excessive reduction in respiratory function. Nonresected portions of a lung have space filling as well as functional value.

Indicated most frequently in bronchiectasis and tuberculosis, segmental resections are also applicable in some cases of lung abscess, mycotic disease, cystic disease, localized emphysema with or without ruptured bleb, bronchopleural or bronchocystic fistula, broncholithiasis, trauma and arteriovenous aneurysm. In bronchopulmonary neoplasia subtotal resection of a lobe or lung is rarely advisable.

Fifty operations are reported in which segmental resection was performed, either alone or in conjunction with lobectomy.

Specialization.—The main justification for specialisation among clinicians is the necessity for mastering difficult techniques. The various branches of surgery are all legitimate specialties for therapeutic reasons; and ophthalmology, otorhinolaryngology, and perhaps a few others are also legitimate for diagnostic reasons. The same considerations apply to anesthetics and radiotherapy. But in the field of medicine as opposed to surgery, and also in the important part of surgery which precedes the actual operation, there is little to be said in favour of specialisation, and much to be said against it. The modern tendency to subdivide physicians into cardiologists, gastroenterologists, phthisologists, diabeticians, rheumatologists, kidney specialists, and the rest is regrettable. Even in so far as certain medical specialties, such as pediatrics and neurology, are justifiable, those who practise them would usually be better if they were also general physicians.

The value of the physician is derived far more from what may be called his general qualities than from his special knowledge. A sound knowledge of the etiology, pathology, and natural history of the commoner disease is a necessary attribute of any competent clinician. But such qualities as good judgment, the ability to see the patient as a whole, the ability to see all aspects of a problem in the right perspective, and the ability to weigh up evidence are far more important than detailed knowledge of some rare syndrome, or even the possession of an excellent memory and a profound desire for learning.—J. W. Todd, M.D., Specialisation, *The Lancet*, Feb. 24, 1951.

CLINICAL NOTES

HEMOLYTIC STREPTOCOCCIC SORE THROAT

CORTISONE IN THE TREATMENT OF THE POSTSTREPTOCOCCIC STATE

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Charles F. Naegele, M.D.
and
Frederic D. Regan, M.D., New York

Patients suffering from hemolytic streptococcic infection of the respiratory tract frequently develop a variety of disorders as a complication of their illness. Skin manifestations, polyarthritis, involvement of the heart and its structures, persistent fever, general toxicity, and nephritis may develop in from three to 30 days after the respiratory infection begins.

It has been noted [1a] that in approximately 20% of such respiratory tract illnesses, a disorder supervened which could not be explained on the basis of increased reaction of the primary inflammatory site or as a result of invasion of remote tissues by the hemolytic Streptococcus. These complicating nonsuppurative sequelae of hemolytic Streptococcus disease have been referred to as the poststreptococcic state. It has been suggested that this state occurs not as the result of the primary etiological agent per se, but rather as a more complex mechanism by which the patient's tissues have been sensitized to some fraction or product of the hemolytic Streptococcus, probably as a result of previous exposure to this organism.

It is the purpose of this paper to present a case demonstrating the classical features of the poststreptococcic state as described by previous investigators,[1] and to emphasize the efficacy of cortisone in the treatment of this condition.

REPORT OF CASE

History.—L. S., a 17 year old white woman of Latvian extraction, was admitted to the United States Marine Hospital, Staten Island, N. Y., April 24, 1950, with a history of sudden onset of a sore throat, chills and fever six days previously. A diagnosis of acute tonsillitis had been made by her physician, and penicillin therapy initiated. Because of lack of clinical response and continued fever to 104 F., she was referred for hospitalization. The past history was noncontributory.

Physical Examination.—On admission, examination revealed an acutely ill, toxic young woman, with a marked erythematous bimalar flush. The temperature was 104 F., pulse 126 per minute, respirations 24 per minute. The posterior pharyngeal wall and tonsillar fossae were diffusely injected, and there were sev-

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Cortisone was made available by Merck & Co., Inc., Rahway, N. J., Dr. James Carlisle, Medical Director. This was done through a special grant from the United States Public Health Service, Federal Security Agency.

1. (*a*) *Rantz, L. A.; Boisvert, P. J., and Spink, W. W.*: Hemolytic Streptococcic Sore Throat: The Poststreptococcic State, Arch. Int. Med. **79**:401 (April) 1947. (*b*) *Mallory, G. K., and Keefer, C. F.*: Tissue Reactions in Fatal Cases of Streptococcic Haemolyticus Infection, Arch. Path. **32**:334 (Sept.) 1941. (*c*) *Keefer, C. F.*: The Late Nonsuppurative Disorders of Hemolytic Streptococcal Diseases, Texas State J. Med. **35**:457, 1939. (*d*) *Jensen, C. R.*: Nonsuppurative Poststreptococcic (Rheumatic) Pneumonitis: Pathological Anatomy and Clinical Differentiation From Primary Atypical Pneumonia, Arch. Int. Med. **77**:237 (March) 1946. (*e*) *Robinson, P.*: Hemolytic Streptococcic Infections: Their Complications and Sequels with Special Reference to Penicillin Treatment, Brit. M. J. **2**:213, 1945.

eral small ulcerations on the undersurface of the tongue and on the buccal mucosa. There was a scarlatiniform rash involving the trunk, noted especially on the extremities and back. There was a bilateral, nontender, cervical adenopathy. The remainder of the examination disclosed no pertinent abnormal findings.

Laboratory Data.—Examination of the blood showed 3,400,000 red cells, 10.5 gm. of hemoglobin per 100 cc., 27,100 white cells, with 39% band forms, 49% neutrophiles, 10% lymphocytes and 2% eosinophiles. Platelet count, bleeding time and coagulation time were normal. The sedimentation rate (Cutler method) was 25 mm. in one hour. Urinalysis was negative. Agglutination reactions for typhoid, paratyphoid, Brucella, and Bacillus proteus X_{19} form O were negative in all dilutions, and remained so throughout hospitalization. The heterophile agglutination tests were repeatedly negative. The antistreptolysin titer was initially positive in a dilution of 1:40, rising to 1:450 on the 25th hospital day. Stool examinations were negative for ova, parasites and pathogenic bacteria. Initial blood culture revealed colonies of gram-positive cocci, which could not be subcultured. Subsequent blood cultures, repeated at frequent intervals, were consistently negative. Roentgenograms of the chest were normal. The interpretation of the electrocardiogram was within normal limits. Smears and cultures of the throat demonstrated the presence of beta hemolytic streptococci. All subsequent throat cultures were negative.

The clinical impression was that the patient had a hemolytic streptococcic sore throat, resistant to previous penicillin therapy.

Hospital Course.—On the first hospital day, the oral administration of aureomycin hydrochloride was begun, with a total daily dosage of 4 gm. The patient continued to be febrile and markedly toxic. Because of possible bacteremia, penicillin therapy was also instituted, 1 million units being injected intramuscularly every three hours. Subsequently, the results of sensitivity studies were returned, showing the hemolytic Streptococcus initially isolated to be completely inhibited by 5 units of penicillin per milliliter, 5 γ of aureomycin per milliliter, 5 γ of chloramphenicol (chloromycetin®) per milliliter, 5 γ of streptomycin per milliliter and 2,500 γ of sulfadiazine per milliliter.

Except for the development of an anemia believed to be due to her general toxemia, the patient's course and laboratory findings continued unchanged. On the eighth hospital day, a grade II apical systolic murmur was heard for the first time. Early desquamation of the skin of the hands and feet was also noted to be present.

Aureomycin was discontinued, and the administration of acetylsalicylic acid begun, 20 grains (1.3 gm.) every four hours. Four days later, streptomycin was added to the patient's therapeutic regimen, 2 gm. being given daily, intramuscularly, in divided doses.

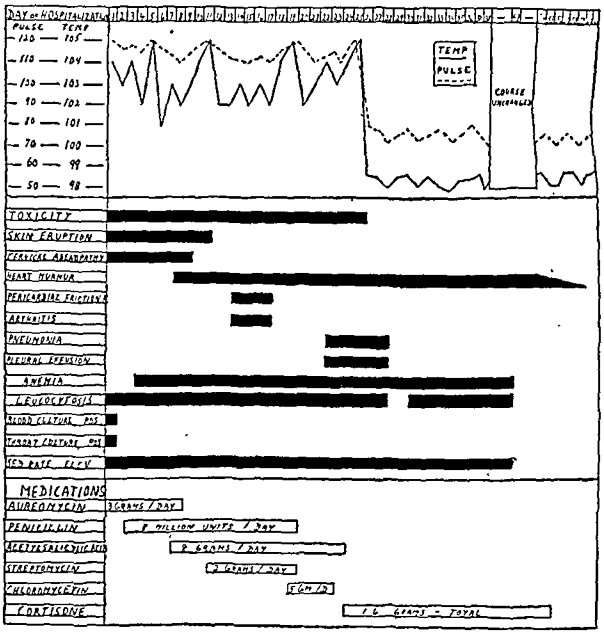
On the 14th hospital day, a pericardial friction rub was heard, and the apical systolic murmur appeared to be more marked. The patient also complained at that time of severe pain in her left knee and right ankle. Slight erythema and moderate effusion of the left knee was present. These manifestations subsided within four days.

On the 20th hospital day, penicillin and streptomycin were discontinued, and chloramphenicol was begun, in a total daily dosage of 5 gm. Three days later, signs of a left lower lobe pneumonia with pleural effusion were detected, and a diagnostic tap obtained straw-colored fluid, which proved to be sterile transudate.

Intensive supportive therapy was maintained, including frequent blood transfusions, electrolyte replacement, parenteral vitamins and general symptomatic measures. Despite this, the patient's course continued downhill. On the 25th hospital day, eosinophile counts showed a significant increase following the epinephrine test.[2] The following day cortisone therapy was initiated.

Four hours after the administration of 100 mg. of cortisone, an eosinopenic response was noted. Within 12 hr., the patient became afebrile, and remained so thereafter. She received a total of 700 mg. of cortisone within a four-day period. She was then maintained on 100 mg. daily for four days, at which time the early manifestations of a Cushing's syndrome were observed; notably, a "moon facies" and plethoric appearance. Serum electrolyte studies revealed the development of a hypokalemic hypochloremic alkalosis. The patient was treated with potassium chloride and testosterone proprionate, with subsequent reversal of these findings. Cortisone therapy was reduced to a daily dosage of 25 mg.

During the first four days of cortisone therapy, the white blood cell count dropped to 7,800, with a normal differential. The sedimentation rate (Cutler method) remained elevated, being 30 mm. in one hour. Two days later, the patient's white blood cell count rose to 17,000, with a marked neutrophilia. Serial counts were consistently in the same range, until the 22nd day of cortisone therapy, when a normal white cell count and differential and a normal sedimentation rate were recorded.



Clinical and laboratory course of L. S.

The patient's course was one of continued marked improvement. Cortisone therapy was discontinued after 28 days of treatment; a total of 1.6 gm. had been given. Ambulation was gradually achieved.

The patient has remained clinically well to date, and all laboratory examinations have been within normal limits.

COMMENT

The essential features of the nonsuppurative complications of hemolytic Streptococcus disease and the importance of the concept of the poststreptococcic state have been emphasized by many investigators[3] in recent years. Rantz and his associates[1a] studied a large number of cases of sore throat caused by group A hemolytic streptococci in young adults. Although complete and uneventful recovery occurred frequently, convalescence in many instances was marred by the development of a complication. These complications included prolonged and persistent fever, general toxicity, skin manifestations, arthritis, adenitis, carditis, pneumonia and glomerulonephritis. In individual cases, there were noted nonsuppurative sequelae, ranging from few to many and varying in intensity from mild transient states to those producing extreme debility. In fatal cases, Mallory and Keefer[1b] described anatomic changes in the heart, kidneys, liver, spleen, lungs and pancreas.

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[2] McGavack, T. H.: Diagnostic Procedures in Cases of Adrenocortical Hypofunction, New York Med. 6:16, 1950.

[3] Massell, B. F.; Warren, J. E., and Sturgis, G. P.: Observations on Effects of ACTH in Patients with Rheumatic Fever and Rheumatic Carditis, Proc. First Clin. ACTH Conf., Philadelphia, The Blakiston Company, 1950, p. 405.

SUMMARY AND CONCLUSIONS

The case presented describes the development in a young white woman of a typical hemolytic Streptococcus infection of the throat. In spite of early and adequate antibiotic therapy, she continued to manifest prolonged unremitting fever. Subsequent complications included a scarlatiniform rash, transient arthritis of the knee and ankle, a grade II mitral systolic murmur, a transient pericardial friction rub, a left lower lobe pneumonia and pleural effusion, anemia, leukocytosis with pronounced neutrophilia, progressive generalized toxicity, and a downhill course leading to extreme debility.

The chart illustrates the clinical and laboratory course of this patient, and her complete lack of response to specific antibiotics, salicylates and general supportive measures. It thus seems evident that this case fulfilled the criteria previously defined for the poststreptococcic state.

After the original observations by Hench[4] and his group, many workers have confirmed the fact that patients with rheumatic fever demonstrate a dramatic improvement when treated with cortisone. Because of the proved ability of cortisone as an agent capable of inhibiting the tissue response of rheumatic fever, it was felt that it should be effective in treating other of the nonsuppurative complications of hemolytic Streptococcus infections. For this reason, cortisone was thus administered to this patient. It was followed immediately by the rapid disappearance of all the features of the poststreptococcic state.

It appears possible that the mechanism of cortisone's favorable influence on the manifestations of the poststreptococcal state depends on the ability of the adrenal oxysteroids to alter the allergic tissue reaction that follows the union of antigen and antibody.[5] This hypothesis would tend to be supported by the work of Mallory and Keefer,[1b] which suggested that the anatomical lesions found in the tissues of fatal cases of hemolytic streptococcal infection were due in part at least to an antigen-antibody reaction.

It has been further emphasized by Selye[6] that certain fundamental hormonal homeostatic mechanisms occur during stress situations. It has been shown experimentally and at least implied clinically that during periods of excessive stress, this hormonal self-regulation breaks down. It is felt that in some of the collagen disorders and related diseases, there exist complex metabolic disturbances, which necessitate prolonged replacement of adrenal steroids, and in certain of these, probably permanent replacement. On the other hand, in states where the "alarm reaction" has been initiated by bacterial infection and where an antigen-antibody relationship exists, in our experience, the process has been reversible.

We would thus agree with Hench, who observed that the action of cortisone appears to be group specific rather than disease specific or nonspecific, and that cortisone perhaps constitutes one of the body's chief defenses against the action of certain agents on certain tissues.

United States Marine Hospital, Staten Island.

ACTH AND CORTISONE IN THE ACUTE CRISIS OF SYSTEMIC LUPUS ERYTHEMATOSUS

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A. C. Corcoran, M.D.
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Management of systemic lupus erythematosus with cortisone or pituitary adrenocorticotropic hormone has now been resolved into two phases: the first consists of the control of the disabling manifestations of the disease with cortisone and pituitary adrenocorticotropic hormone, and the second of a maintenance program that sustains this remission but does not elicit the side effects of hypercorticoidism. The acute lupus crisis, such as is described below, is in some ways a thing apart from either phase and is usually fatal. The purpose of this report is to describe the treatment of the acute lupus crisis with massive doses of cortisone or pituitary adrenocorticotropic hormone.

Sixteen patients with systemic lupus erythematosus have been treated with these drugs at the Cleveland Clinic Hospital since October 1949. In each case the plasma lupus erythematosus test gave positive results. Four patients have died, but none since we have begun the use of the large doses. Four have entered acute lupus crises, either spontaneously or during attempts to withdraw cortisone. All of these were successfully treated with the massive dose technic. One such patient is reported in brief.

REPORT OF CASE

A woman, aged 23, was admitted to the Cleveland Clinic Hospital on Oct. 18, 1950. In October 1948, she noticed sudden onset of pain, swelling and redness of the interphalangeal joints of both hands. Her condition responded to salicylates until January 1949 when the arthritis recurred. A fever of 102 F. developed, and she was hospitalized elsewhere. The diagnosis was rheumatoid arthritis. Gold injections were begun, with gradual improvement in her condition. A complete remission occurred in April 1949, and she returned to work. Joint pains recurred in October 1949. Shortly thereafter a temperature of 104 F. was noted in association with pleural pain and effusion. From the left thoracic cavity, 2.6 liters of fluid were removed. Her condition became steadily worse, requiring frequent hospitalization.

Physical examination revealed an asthenic, pale, orthopneic white woman. The temperature was 102.2 F. and pulse rate 100 per minute. The blood pressure was 90/70 (mm. Hg.). A few shotty nodes were felt in the posterior cervical region. The skin was clear. Examination of the chest revealed dulness of the bases with decreased tactile fremitus. The breath sounds were absent in the left base and diminished on the right. Sinus rhythm was

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[4] Hench, P. S.; Slocumb, C. H.; Barnes, A. R.; Smith, H. L.; Polley, H. F., and Kendall, E. C.: Effects of Adrenal Cortical Hormone 17-hydroxy-11-dehydrocorticosterone (Compound E) on Acute Phase of Rheumatic Fever: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24**:277-297 (May 25) 1949.

[5] Thorn, G.; Forsham, P. H.; Frawley, T. F.; Hill, S. R.; Roche, M.; Staehelin, D., and Wilsin, D. L.: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242**:783, 1950.

[6] Selye, H.: The Alarm Reaction and the Diseases of Adaptation, Ann. Int. Med. **29**:403, 1948.

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This investigation was supported (in part) by a research grant from the National Institute of Health, Public Health Service.

noted. The spleen reached one finger's breadth below the costal margin. The neurologic examination was normal.

Laboratory studies revealed hemoglobin to be 8 Gm. per 100 cc. Leukocyte count was 1,500 per cubic millimeter; in the differential count, neutrophils were 51 per cent, lymphocytes 36 per cent and monocytes 13 per cent. The plasma lupus erythematosus test[1] gave positive results. The sedimentation rate (Rourke-Ernstene) was 0.75 mm. per minute (the normal being less than 0.45). There were no total blood eosinophils.[2] Blood chemistry determinations (urea, sugar, serum sodium, potassium, plasma carbon dioxide-combining power and chlorides) were normal. Plasma proteins (electrophoretic technic) totaled 5.97 Gm. per 100 cc., albumin 2.69 Gm., alpha globulin 0.55 Gm., beta globulin 1.22 Gm., gamma globulin 1.18 Gm. and fibrinogen 0.3 Gm. per 100 cc. Urea clearance was 68 per cent of normal. A 12 hour urine specimen taken at night contained protein 1.05 Gm., casts 2,000,000, erythrocytes 1,200,000 and leukocytes 24,000,000.

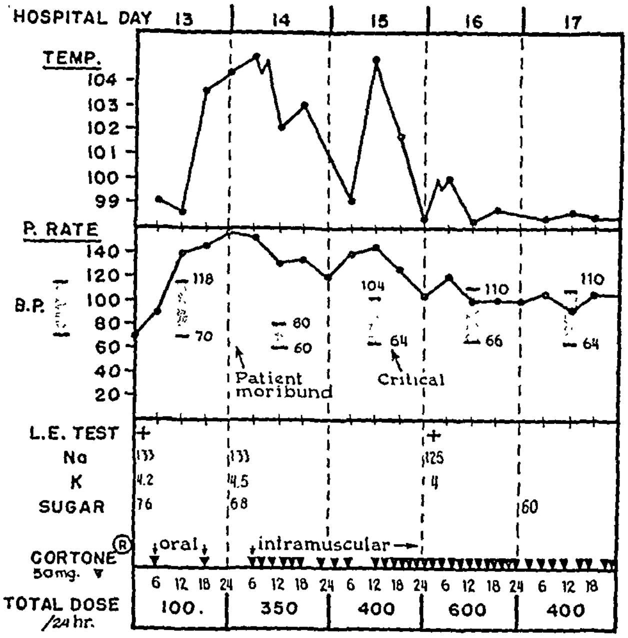

Chart of woman, aged 23, in acute lupus crisis. Note response to cortisone given at two hour intervals. B. P. represents blood pressure (mm. Hg.).

On 200 mg. of cortisone daily the temperature and pulse rate became normal within 48 hours. The drug was administered orally in one-half glass of milk in divided doses of 50 mg. every six hours. Antibiotics were concurrently administered. On the thirteenth hospital day the pulse rate rose from 84 to 140 per minute. In a few hours the temperature rose from 98.8 F. to 105 F., and the patient seemed moribund (chart). Respirations were rapid and shallow. The pleural effusion was greatly increased. The cortisone dosage was increased to 50 mg. given intramuscularly every two hours. A definite improvement was noted within six hours, and after 12 hours the dose was changed to 50 mg. every four hours. After three such doses the patient's condition again became critical, and the two hour regimen was resumed. A total of 600 mg. was administered within 24 hours. Though the clinical improvement was striking, there was no important change in the laboratory findings. The results of the plasma lupus erythematosus test remained positive, and the sodium, potassium and sugar levels were unchanged. Proteinuria decreased. The patient was subsequently started on pituitary adrenocorticotropic hormone and is now clinically well on 40 mg. of pituitary adrenocorticotropic hormone per day.

COMMENT

Acute lupus crises were successfully treated in three other patients. Cortisone was administered in two, and pituitary adrenocorticotropic hormone in one. The short interval, large total dose technic was used in each instance. Aside from our usual precautions, such as low sodium diet, supplementary potassium and antibiotics, no special regimen was followed. In two patients, large doses of cortisone resulted in a decrease in proteinuria, and in one of these a decrease in hematuria occurred. Protein excretion fell from 18 Gm. daily to 4 Gm. in one patient, from 3 Gm. daily to 1 Gm. in the other patient. The urinary abnormalities were not intensified during the lupus crisis in a fourth patient, and massive doses of cortisone did not alter them significantly. After three days of intensive treatment the results of the plasma lupus erythematosus test became negative in one patient. They remained so during several weeks of maintenance steroid therapy but became positive again during a subsequent relapse. In the other three patients the massive doses failed to alter the positive results of the plasma lupus erythematosus tests.

Cortisone and pituitary adrenocorticotropic hormone each have their place in the management of systemic lupus erythematosus. We have previously considered cortisone the slower of the two in inducing a lupus remission. It is now evident that, given orally or intramuscularly in large enough doses, cortisone may produce an even more rapid clinical response than comparable dosages of pituitary adrenocorticotropic hormone. In the management of chronic cases, cortisone given orally is well tolerated and definitely preferred to intramuscular administration by the patients.

On the other hand, it is our experience that pituitary adrenocorticotropic hormone is preferable in the lupus patient with the volatile, stormy course. Relapses during pituitary adrenocorticotropic hormone are less severe and, because they are slower in onset, can be detected before the condition of the patient deteriorates into an acute lupus crisis.

It is not recommended that the short interval, massive total dose technic be used except during the acute lupus crisis when the patient's status is desperate and irresponsive to the usual doses. Most patients in relapse but not in crisis respond to about 200 mg. of either drug per day. When a satisfactory response has been established, the total daily dose is gradually diminished. The aim is to find a minimal level consistent with the patient's well-being. We no longer discontinue the drugs entirely, though an attempt is made to diminish the dose progressively over several months.

The onset of an acute lupus crisis can often be traced to intercurrent infection. Consequently, antibiotics are given in full doses during the acute phase as an adjunct to cortisone and pituitary adrenocorticotropic hormone therapy. They are often continued in smaller, bacteriostatic doses as adjuncts to the maintenance routine.

SUMMARY AND CONCLUSIONS

Sixteen patients with systemic lupus erythematosus have been treated with pituitary adrenocorticotropic hormone and/or cortisone at the Cleveland Clinic Hospital. Both drugs have been found to be invaluable in the control of the acute phase, as well as during the maintenance periods, of the disease. Four patients with acute lupus crises responded favorably to short interval, massive total doses. No untoward clinical or laboratory findings were noted. Such treatment is recommended in these desperate situations. Smaller doses are effective in most patients, and still smaller doses suffice in prolonged management. Thus it seems likely that the need for adrenal hormones varies with the severity of the process.

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[1] Haserick, J. R., and Bortz, D. W.: New Diagnostic Test for Acute Disseminated Lupus Erythematosus, Cleveland Clin. Quart. **16**: 158 (July) 1949.

[2] Forsham, P. H.; Thorn, G. W.; Prunty, F. T. G., and Hills, A. G: Clinical Studies with Pituitary Adrenocorticotropin, J. Clin. Endocrinol. **8**: 15 (Jan.) 1948.

ADDENDUM

Since this manuscript was submitted, we have observed a girl, 13 years of age, during an acute lupus crisis that did not respond to cortisone in doses of 250 mg. daily.

The crisis was evidenced by severe malaise, high fever, epileptiform convulsions with dysrhythmic electroencephalographic patterns, retinal exudates, proteinuria, cylindruria and hematuria. In spite of antipyretics and tepid sponging, her condition became critical with fever ranging from 100.1 to 104.6 F. on the oral administration of 350 mg. of cortisone daily. Her condition deteriorated further the following day with fever ranging from 100 to 105.6 F. A total cortisone dosage of 900 mg. (given intramuscularly every three hours) resulted in some improvement; her condition was still critical, and her fever was only slightly less the next day on a dosage of 1,050 mg. The dosage was then increased to a total of 2,300 mg. (100 mg. every hour) for one day. Her condition improved greatly, and the next day her temperature ranged only from 98 to 99.8 F. Cortisone dosage was reduced to 1,400 mg. and on succeeding days was further decreased. The patient died two weeks later of an untoward complication.

The partial remission obtained with what we believe to be the largest recorded daily dosages of cortisone illustrates the principle of massive dose therapy in acute lupus crisis.

VINEGAR EEL IN SPUTUM

REPORT OF A CASE

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Robert S. Long, M.D.
John R. Schenken, M.D.
and
Eugene E. Simmons, M.D., Omaha

The following brief case report is presented as an illustration of an unusual finding in a routine examination of a sputum specimen.

N. H., a white male manufacturing executive, 50 years of age, was admitted to the hospital March 28, 1950, for investigation of an acute episode of rather profuse hemoptysis. The clinical history revealed that he had had a chronic productive cough since childhood and pulmonary hemorrhage had occurred on two previous occasions. The bronchogram confirmed the clinical diagnosis of extensive saccular bronchiectasis involving chiefly the left lower lobe and the lingula. The rest of the lung fields were roentgenographically normal in appearance. Routine sputum examinations disclosed the presence on one occasion of an organism resembling the larva of Filaria, Strongyloides or hookworm. Inasmuch as a fresh disposable sputum cup was used for each specimen, the organism was not thought to be a contaminant. The question at once arose as to whether the pulmonary pathology could be due to persistent or recurrent infection with one of these organisms. Several fresh stool specimens were examined, and no ova, larvae or adult forms of these organisms were found. On closer examination, the specimen found in the sputum appeared to be much broader than the filaria larva, but the buccal cavity was not well enough preserved to permit differentiation from that of Strongyloides or Necator americanus. It was then suggested that the specimen was probably Anguillula aceti, commonly known as the "vinegar eel." The patient was then questioned, and it was found that he had eaten spinach and vinegar the evening before the sputum cup was collected. Examination of vinegar from the kitchen where the patient had been served disclosed the presence of many vinegar eels identical with the specimen found in the patient's sputum. The patient subsequently underwent left lower lobectomy and lingulectomy. The gross and microscopic pathology were characteristic of chronic saccular bronchiectasis, and no larvae were found in the surgical specimen.

COMMENT

A brief survey of the literature has not revealed a previous report of this unusual finding. It is of interest in that it illustrates how a common nonpathogenic organism may contaminate a laboratory specimen and confuse a clinical diagnosis as to correct etiology.

826 Medical Arts Building.

DIVERTICULUM OF THE STOMACH

REPORT OF A CASE

Norman Van Wezel, M.D., Foley, Ala.

In July, 1948, Bralow and Spellberg reported 26 new cases of diverticulum of the stomach. They also reviewed the 150 previous cases which Moses had covered up to 1946 in his review. This indicates that in the hundreds of thousands of gastrointestinal studies made, there are very few cases of diverticulum of the stomach reported. The small number of cases reported may be due to two things: either an actual rarity of stomach diverticula or the fact that they are overlooked. Since this is the first time that I have seen this condition in private practice, I am therefore reporting this case.

In large clinics diverticulum of the stomach has been reported as occurring in from 0.02% to 0.65% of all gastrointestinal studies. Though diverticula of the gastrointestinal tract may occur in any part of the intestinal tract, the portion of the tract in which they least occur is the stomach. When they occur in the stomach, the most common location is on the lesser curvature on the posterior surface of the cardia. Age incidence or sex difference has not been determined because the cases are too few to tabulate.

The types of diverticula are the congenital, the acquired, and the false. In the congenital type, all three walls of the stomach are within the diverticulum, and the patient is, of course, born with this deformity. Acquired diverticula are divided into two types, the pulsion type and the traction type. The pulsion type is probably due to an ulcerated area with some increase in the intragastric pressure. In the traction type there is some external inflammatory process that produces a local adhesion and pulls the diverticulum externally. A false diverticulum is probably due to some break in the wall, so that there is actually a hernia of the mucosa or the submucosa through the musculature. This is not considered a true diverticulum.

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Symptoms of diverticula of the stomach may not be present. Many patients with stomach diverticula are labelled neurotic or psychoneurotic for a long time. In reviewing the cases, it will be found that some diverticula have definitely been proved to produce symptoms, because on the removal of the diverticulum the patient's complaining symptoms were also removed. However, it is probable that most stomach diverticula are asymptomatic. The diagnosis, of course, can be made only by x-ray. It can then be confirmed by surgery or exploration. Diverticula are often difficult to confirm at operation because of the relative degree of inaccessibility of the diverticulum at the time of operation. When the examiner is convinced that the diverticulum is causing symptoms, then surgery is indicated. However, in the case reported below, the patient was completely relieved by proper drainage, which he obtained by lying on his left side immediately after eating. It is because of this incidental finding and the conservative treatment that this case is being reported for the literature.

REPORT OF CASE

W. H. O., a 39 year old white married man, a mechanic by trade, was referred for x-ray examination by Dr. J. M. Michaelson.

His history revealed that throughout his entire life he was sensitive to milk, and he had perennial hayfever. He attributed most of his digestive disturbances to the inadvertent use of milk. However, six months before examination he was found to have undulant fever. After this, bronchitis developed, which was treated by antibiotics, and he then broke out with a generalized rash, which was thought to be due to the antibiotics. Following this, his digestive symptoms, which had always, in the past, been due to milk, returned. This time, however, there had been no ingestion of milk. The indigestion consisted of heartburn, or pyrosis, with a crowding of his heart. There was some nausea but no vomiting and some sharp sticking pains in the region of the right nipple. Belching or ingestion of soda did not give him relief. He now noted that when he had this heartburn he began to break out with some urticaria. This same syndrome, namely, the heartburn, or pyrosis, followed by the urticaria, in the past had been attributed to milk and, occasionally, to simple nervousness. It was with this clinical diagnosis, namely, a gastric neurosis complicated by an allergic state, that he was referred for x-ray studies.

A complete physical examination revealed no abnormalities except a pale boggy nasal mucosa consistent with hayfever. The laboratory studies were all within normal limits, except the examination of the blood smear, which showed 10% eosinophils.

The x-ray examination revealed that the patient had a diverticulum on the posterior surface of the lesser curvature near the cardia of the stomach. This would vary in size. On the most medial surface of the diverticulum there was an irregularity which has not changed.

COMMENT

It is to be emphasized that the diverticulum varies in size, either because of incomplete filling or because of overdistention and contractions. The patient has been completely relieved of all of his symptoms by assuming a left lateral recumbent position immediately after eating. He has had no other therapy except the usual avoidance therapy for his food allergy. Because of its contractibility, it is probably a true diverticulum of the congenital type.

The above case is presented to serve as a record of an unusual condition of the stomach so that it may be tabulated with other studies and, also, to demonstrate the relief of symptoms as obtained by the simple procedure of assuming the proper postural drainage.

301 W. Laurel Avenue

CLOSTRIDIUM BOTULINUM IN A FATAL WOUND INFECTION

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Lida H. Mattman, Ph.D.
and
Marjorie Wiley, A.B., Philadelphia

Clostridium botulinum has been studied extensively because of its power to cause a fatal type of food poisoning. Animal studies have shown, that, at least experimentally, it can produce its toxin also when inoculated intramuscularly. To our knowledge, however, a serious infection with this organism has never been reported in man. In fact, the bacillus has been found in human wounds in only three cases, all reported by Hall[1] in 1945.

In Hall's cases, only one patient had any untoward symptoms. He suffered incipient gas gangrene with a temperature of 105 F., and induration with crepitus of his injured leg. Sulfonamide therapy and surgery were utilized with a final satisfactory result. The two patients without symptoms harbored Cl. botulinum type A. The first patient's organism was type B.

Studies on the intramuscular injection of Cl. botulinum into animals have shown that it is not difficult to produce fatal infections. The symptoms in animals inoculated by extra-oral routes are reported to be identical with the classical symptoms of botulism following toxin ingestion.

It is of interest to note how few spores may produce an infection when the tissue is necrosed by formaldehyde solution. In 1929 Coleman conducted such a study in guinea pigs and found that 25 heated spores could cause a fatal infection.[2] The symptoms occurred in three to four days, with death two to eight hours later.

When calcium chloride is injected with Cl. botulinum spores, infection is also facilitated, as shown by Edmonson, Giltner and Thom[3] in 1920. When the chloride and spores were in the same area the incubation period was short; when they were injected 3 to 4 cm. apart the incubation period was sometimes lengthened to two weeks.

Botulinum may spread from the original site through the blood stream as indicated by Orr,[4] 1922, who found that the bacillus could frequently be recovered from the spleen when it was examined several days after an intramuscular injection.

Most of the workers doing experimental studies have found great differences in pathogenicity among various strains of the organism, and varying susceptibility in individual animals.

REPORT OF CASE

On Nov. 6, 1943, a 15 year old white girl was admitted to the Philadelphia General Hospital Fracture Service 20 min. after she had fallen from her second-story bedroom to the

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From the Surgical Service of Dr. William H. Erb, Philadelphia General Hospital, and the Harrison Department of Surgical Research, University of Pennsylvania.

[1] Hall, I. C.: The Occurrence of Bacillus botulinus, Types A and B, in Accidental Wounds, J. Bact. **50**: 213, 1945.

[2] Coleman, G. E.: Intramuscular Infection of Guinea Pigs with Spores of Clostridium botulinum, Am. J. Hyg. **9**: 47, 1929.

[3] Edmonson, R. B.; Giltner, L. T., and Thom, C.: The Possible Pathogenicity of Bacillus botulinus, Arch. Int. Med. **26**: 357 (Sept.) 1920.

[4] Orr, P. F.: The Pathogenicity of Bacillus botulinus, J. Infect. Dis. **30**: 118, 1922.

ground, landing on her feet. Both legs were splinted before she was moved to the hospital.

Physical examination revealed a superficial abrasion on the right lateral chest wall. The pulmonary status was normal. There was medial angulation of the left lower leg in the middle third. There was mobility and crepitus at this point, but no break in the skin. There was a 5 cm. jagged, open wound involving the lateral half of the right ankle through which the lateral malleolus protruded. This was caked with dirt and sand. The tibio-astragalar joint was dislocated medially and was filled with street filth. Circulation in the foot appeared to be normal, and a dorsalis pedis was palpable when the foot was rotated to approximate normal position. Sensation was normal in both legs and feet. Reflexes were not elicited in the lower extremities.

X-rays taken immediately on admission showed no evidence of fracture of the lumbar spine or the sacrum. There was a fracture of the left tibia and fibula in the midportion of the shaft, with lateral displacement of the fragments. There was a fracture of the medial malleolus and dislocation of the right ankle joint.

At operation, the exposed distal end of the right lateral malleolus was cleansed at length with copious amounts of warm saline and aqueous soap, and the wound enlarged longitudinally. The ligaments of the lateral side of the ankle joint were found to be ruptured, with the wound opening immediately into the joint space. When the joint had been cleansed completely, the ragged edges of the ligaments were excised and hemostasis obtained. Debridement was meticulous, and included all tissue which was not obviously viable and much viable tissue that could not be cleaned. Five grams of sulfanilamide crystals were placed in the wound. The skin, subcutaneous tissues, and lateral ligamentous structures were loosely approximated with four through-and-through interrupted black silk sutures. A rubber dam drain was placed behind the joint space, anterior to the Achilles tendon and brought out through a stab wound on the medial side to provide through-and-through drainage. Tissue was taken for culture.

Immobilization in approximate anatomical position was maintained by lateral molded plaster splints extending to the knee. The fractured left tibia was reduced by manual traction and immobilized with lateral molded plaster splints extending from the toes to the upper third of the thigh with the knee slightly flexed.

Postoperative x-ray study showed the left leg in nearly anatomical position. The position of the right ankle was satisfactory. When the patient was admitted to the ward after operation, her temperature was 98.8 F. (axillary), pulse 128, respiration 32.

Tetanus antitoxin in full prophylactic dose was given. The combined gas gangrene and tetanus antitoxin was not available. The patient was immediately started on sulfathiazole, later changed to sulfadiazine.[5]

Pain in the foot was noted at 8:30 a. m. of the first postoperative day, but investigation revealed no cause. Both legs were elevated. The temperature remained 99 to 99.8 F., with the pulse 80 to 100 per minute, respirations 30 to 40 per minute.

At 8:00 a. m. on the second postoperative day the temperature reached 101 F. The pulse was 90 and respirations 25. By evening the temperature was recorded at 101 F., pulse 130 per minute, respirations 30 per minute. The patient complained of pain in both feet, and it was noted that the right foot was cool.

Gas was discovered in the tissues on the third postoperative day (Nov. 9, 1943) extending to within 4 in. (10 cm.) from the knee. On that day radical incision of the leg, with slashes extending through the deep fascia from knee to dorsum of the foot, revealed normal tissue at the upper portion with good blood supply, but much necrosis and no free hemorrhage in the lower portion. The odor was typical of gas gangrene. Cultures were taken.

The leg was packed in ice and elevated. Polyvalent gas gangrene antitoxin, whole blood, plasma, and glucose were given. Extreme toxicity continued, and a guillotine type amputation was done through viable tissue just below the knee on the fifth day after injury.

The patient withstood surgery well, but did not show marked improvement after it although the previous treatment was continued.

X-ray examination of the left leg Nov. 16, 1943, ten days after injury, revealed a large amount of gas about the fracture site, extending almost to the head of the fibula laterally. Examination revealed crepitus over the middle third of the lower leg. The foot was pale but somewhat pink. A dorsalis pedis was not palpable.

On the same day, this leg was incised radically in a manner identical with the first procedure on the other leg. When this was done 150 cc. of foul pus was liberated with a gush, together with much gas and a distinct mousy odor. The family would not consent to amputation. X-ray therapy was given.

The patient gradually grew worse. On Nov. 20, (14 days after injury) she presented a striking picture of cyanosis, dysphagia, inability to speak and generalized muscular flaccidity. The mental processes seemed relatively unimpaired but diplopia and paresis of the extra-ocular muscles were apparent.

After this she became rapidly worse, and was pronounced dead 16 days after injury on Nov. 22. She had received intravenously a total of 55,000 units of perfringens mixed antitoxin in divided doses. She also had received five blood transfusions, each of 500 cc. of citrated whole blood. A lumbar sympathetic block with a 1% solution of procaine was repeated every 12 hr., following the original discovery of circulatory difficulties in the left leg. Intravenous fluids were administered in amounts sufficient to maintain urinary output in excess of 1,000 cc. daily. Sulfathiazole and later sulfadiazine were given in full dosage. Oxygen, opiates and sedatives were used as needed.

Cultural Studies.—The culture taken from the original wound showed beta hemolytic streptococci, a diphtheroid, alpha hemolytic streptococci, Clostridium tetanus, and an anaerobic gram-positive sporulating bacillus which was identified by mouse protection tests as Clostridium botulinum type A.[6]

Twelve mice were inoculated with the Seitz filtrate of a culture of this anaerobic rod. Two mice were left unprotected and the rest were divided into pairs and received one of the following types of antiserums: Cl. sordellii; Cl. botulinum type A; Cl. botulinum type B; Cl. tetani; Cl. novyi. Only the mice receiving Cl. botulinum type A antiserum survived. The other mice succumbed within 24 hr., exhibiting no symptoms except extreme weakness. This experiment was repeated with the same results. Cultural studies on the organism were also compatible with its identification as Cl. botulinum.

In the preliminary examination of the culture, separation of the Cl. botulinum from Cl. tetanus was accomplished by use of 6% agar in blood agar plates. It will be noted that the patient had received tetanus antiserum.

Autopsy Report.—Postoperative status: amputation of the right leg below the knee; wide incisions on the left leg below the knee. Comminuted fracture of the left tibia and fibula. Thrombosis of the left external iliac vein. Atelectasis, bronchopneumonia of the dependent portion of the lower lobes of both lungs with probable pulmonary embolism. Kidneys, swollen and congested. Liver, congested. Brain, acute and chronic passive congestion with hypoplasia of the circle of Willis.

A culture taken at autopsy from the wound of the leg which became secondarily involved, showed a beta hemolytic Streptococcus, and an alpha hemolytic Streptococcus, but no clostridia were isolated.

In 1929, Coleman[2] noticed in animal studies that occasionally growth of Cl. botulinum occurs in a very restricted area of involved muscle and that unless this particular area is examined no organisms may be found. Failure to isolate the organism in this instance cannot be regarded as proof of its absence at autopsy.

COMMENT

The nature of the original wound, and, in the early stages, the clinical course of this case were identical with typical cases of gas gangrene infection. The failure to respond to the wide incision and the subsequent amputation of the leg in which the compound fracture occurred must be assumed to have resulted from a blood-borne contamination and subsequent infection of the hematoma about the simple fracture of the opposite (left) tibia.

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[5] Penicillin was not available at this date for general use.

[6] Serum for this examination was supplied by Dr. Ivan C. Hall.

The length of time which elapsed before death is striking, but most remarkable was the sudden alteration of the patient's appearance 14 days after injury, two days before death. (A two-week incubation period for parenteral botulism has been noted in animals.) Dysphagia and inability to speak resembled a pseudobulbar palsy. There was cyanosis, a generalized muscular flaccidity most apparent in paresis of the ocular muscles, and impaired respiratory effort followed by cyanosis. Up to this time and for a while thereafter the patient had been fairly alert mentally. The first subjective manifestation of the terminal phase was diplopia and inability to swallow even her own saliva.

The possibility of Cl. botulinum infection was not considered before the death of the patient, but in retrospect, the departures from the usual clinical course of the patient dying of gas gangrene mentioned above are striking in their resemblance to the described clinical course of botulism. None of those concerned with the care of this patient, however, had ever seen a case of food poisoning caused by botulism in a human being.

It cannot be stated definitely that this was a case of botulism from a wound infection. It is a case in which the patient died of gas gangrene of uncertain etiology. Perhaps, when more data on botulinum infections in human beings have been accumulated, it may be judged with more accuracy, or it may give a clue to problem cases of gas infection.

If serious botulinum wound infections do occur in man, a problem arises regarding diagnosis. The prolonged incubation of a culture necessary to demonstrate botulinum toxin, and the time which it frequently requires to obtain such an anaerobe in pure culture, makes cultural methods valueless for aid in possible therapy.

The findings of Coleman and Meyer,[7] 1922, might prove of interest in diagnosis. They inoculated serum of rabbits suffering from botulism into mice, with death of the mice resulting.

Active immunization to botulinum toxins has been accomplished in man by Reames and his associates.[8]

It might be of interest to include an examination of Cl. botulinum strains in the determination of the spectrum of antibiotics.

SUMMARY AND CONCLUSION

A fatal wound infection is reported in which Clostridium botulinum type A was isolated.

A striking similarity to the clinical course of botulism is noted in the terminal phases of this case.

The possibilities of human wound infection with Cl. botulinum is discussed, and the difficulties of early diagnosis are emphasized.

Recommendation for treatment must await further experience and studies.

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[7] Coleman, G. E., and Meyer, K. F.: Some Observations on the Pathogenicity of B. botulinus (X), J. Infect. Dis. **31**: 622, 1922.

[8] Reames, H. R.; Kadull, P. J.; Housewright, R. D., and Wilson, J. B.: 1947. Studies on Botulinum Toxoids, Types A and B. III: Immunization of Man, J. Immunol. **55**: 309, 1947.

AEROSOL THERAPY

VACUUM CLEANER AS A PRACTICAL SOURCE OF POSITIVE PRESSURE FOR NEBULIZATION

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Robert G. Lovell, M.D.
and
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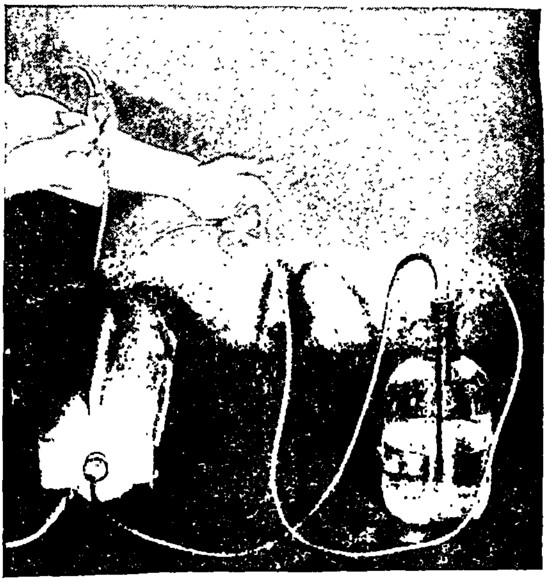
Since aerosol inhalation therapy was advocated by Barach, Segal, Abramson and others[1] for the treatment of pulmonary edema, bronchial asthma, chronic bronchitis and certain suppurative lung conditions, penicillin by aerosol inhalation, in addition to its parenteral injection, has been employed when antibiotics are indicated. Bronchial dilators and sympathomimetic amines also now are given by aerosol. Because the duration of aerosol treatment is long, and the treatment may be prescribed for weeks or months, the practical problem arises as to how such therapy can be carried out at home.



DeVilbiss no. 40 nebulizer attached through "Y" tube to water filter jug and tank-type vacuum cleaner.

Efforts to provide a continuous stream of air pressure were made first by supplying a nebulizer with a rubber

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From the Department of Internal Medicine, University of Michigan Medical School.

The isopropylepinephrine solution (Aerolin Compound) and one type of nebulizer used in this experiment were supplied by Eli Lilly & Company, Indianapolis.

[1] (*a*) Barach, A. L.; Silberstein, F. H.; Oppenheimer, E. T.; Hunter, T., and Soroka, M.: Inhalation of Penicillin Aerosol in Patients with Bronchial Asthma, Chronic Bronchitis, Bronchiectasis and Lung Abscess: Preliminary Report, Ann. Int. Med. **22**: 485, 1945. (*b*) Barach, A. L.; Garthwaite, B.; Rule, C.; Talbot, T. R.; Kernan, J. D.; Babcock, J., and Brown, G.: Penicillin Aerosol and Negative Pressure in the Treatment of Sinusitis, Am. J. Med. **1**: 268, 1946. (*c*) Segal, M. S., and Beakey, J. F.: Management of Bronchial Asthma: Use of 1-(3′,4′ Dihydroxyphenyl) 2-Isopropylaminoethanol, Ann. Allergy **5**: 317, 1947. (*d*) Garthwaite, B., and Barach, A. L.: Penicillin Aerosol Therapy in Bronchiectasis, Lung Abscess and Chronic Bronchitis, Am. J. Med. **3**: 261, 1947. (*e*) Harsh, G. F.: A Comparative Study of Commercial Nebulizers, Ann. Allergy **6**: 534, 1948. (*f*) Abramson, H. A.: Principles and Practice of Aerosol Therapy of the Lungs and Bronchi, Ann. Allergy **4**: 440, 1946. (*g*) Abramson, H. A.; Reiter, C.; Sklarofsky, B., and Gettner, H. H.: Standardization Procedure for Determination of Aerosol Delivery of Nebulizers by Phenolsulfonphthalein Aerosols: Preliminary Report, Ann. Allergy **7**: 390, 1949. (*h*) Abramson, H. A.: Present Status of Aerosol Therapy of the Lungs and Bronchi, in Progress in Allergy, edited by P. Kallós, Basel, Switzerland, S. Karger, 1948, vol. 2.

tube, which, in turn, was attached to a bicycle pump. This required another person to pump the nebulizer while the patient inhaled the medication. In the next attempt the inner tube from a bus or truck tire was inflated, and when it was connected to the nebulizer by a rubber tube continuous pressure for nebulization was supplied for a short time. But the inner tube had to be reinflated prior to each treatment. Patients living near a large city were fortunate in that they could rent tanks of oxygen. By attaching the nebulizer to a hose leading from the tank, a satisfactory stream of pressure was provided. But this method is expensive and inconvenient.

We undertook to find a simple means of providing a source of positive pressure in the home. The vacuum cleaner, an article usually available, was discovered to be an effective mechanism for delivering continuous pressure for aerosol treatment. A few individual types of vacuum cleaner were found to exert insufficient pressure for this purpose. However, any model which will power a paint sprayer attachment works well, since the nebulizer operates on the same principle.

Results of Experiment: Summary of Data

Type of Nebulizer	Source of Pressure	No. of Nebulizers Used	L. per Min. Flow	Medication Used	Average Amount Medication Delivered in 2 Min. (Gm.)	Remarks About Spray
DeVilbiss no. 40	*Compressed air*	4	8	Water	1.3	Excellent
DeVilbiss no. 40	Oxygen	4	8	Water	1.4	Excellent
DeVilbiss no. 40	Vacuum cleaner 1	8	5.5	Water	0.25	Satisfactory
DeVilbiss no. 40	Vacuum cleaner 1	6	5.25	Aerolin compound	0.12	Satisfactory
DeVilbiss no. 40	Vacuum cleaner 2	4	6.5	Water	0.60	Satisfactory
DeVilbiss no. 40	Vacuum cleaner 2	4	6.5	Aerolin compound	0.34	Satisfactory
DeVilbiss no. 40	Oxygen	6	8	Aerolin compound	0.70	Satisfactory
Lilly	*Compressed air*	6	8	Water	0.30	Good
Lilly	Oxygen	5	8	Water	0.40	Good
Lilly	*Oxygen*	6	8	Aerolin compound	0.20	Good
Lilly	Vacuum cleaner 1	4	5.5	Water	0.10	Good
Lilly	Vacuum cleaner 1	4	5.25	Aerolin compound	0.07	Fair
Lilly	Vacuum cleaner 2	4	6.5	Aerolin compound	0.10	Good
Vaponefrin	Oxygen	4	8	Water	1.27	Excellent
Vaponefrin	Oxygen	4	8	Aerolin compound	0.80	Excellent
Vaponefrin	Vacuum cleaner 1	4	4.5	Water	0.11	Satisfactory
Vaponefrin	Vacuum cleaner 1	4	4.5	Aerolin compound	0.04	Satisfactory
Vaponefrin	Vacuum cleaner 2	4	6.5	Water	0.10	Satisfactory
Vaponefrin	Vacuum cleaner 2	4	6.5	Aerolin compound	0.17	Satisfactory
Vaponefrin	Vacuum cleaner 1	4	5.5	Aqueous penicillin 20,000 units	0.30	Satisfactory
DeVilbiss no. 40	Vacuum cleaner 1	4	5.5	Aqueous penicillin 20,000 units	0.35	Satisfactory
Lilly	Vacuum cleaner 1	4	5.5	Aqueous penicillin 20,000 units	0.10	Satisfactory
Lilly	Oxygen	4	8	Aqueous penicillin 20,000 units	0.30	Excellent
DeVilbiss no. 40	Oxygen	4	8	Aqueous penicillin 20,000 units	1.25	Excellent

The actual apparatus (fig.) is set up by obtaining a one-hole cork or rubber stopper and placing it on the attachment tube connected to the exhaust of the vacuum cleaner. Models which have no tube may be converted by putting a cork directly into the exhaust outlet. A 6 inch (15 cm.) piece of glass tubing, ranging from 5 to 8 mm. in diameter is placed through the cork and is attached to a 3 foot (91 cm.) length of rubber tubing. This is connected to a 10 inch (25 cm.) length of glass tube which goes through a two-hole rubber stopper placed in a gallon jug. The jug should be filled with enough water to cover the outlet of the glass tube leading from the vacuum cleaner. This cleans the air from the vacuum apparatus and prevents blowing dust into the nebulizer. Through the other hole in the two-hole rubber stopper in the jug, a short piece of glass tubing is run, to which is attached about 5 feet (1.5 meters) of rubber tubing. This is interrupted about 12 inches (30 cm.) from the end by a glass Y tube. The Y tube allows for escape of air when the patient is exhaling and when it is not necessary to blow air through the nebulizer. This cuts down on waste of medication and provides for the maximum delivery of a given dose when the patient inhales. Coordination between the inspiratory effort and the patient's finger which covers the Y tube when he inhales is easily managed but should be supervised by the doctor before he lets his charge begin a course of regular treatment by aerosol. A nebulizer which is attached to the end of the rubber tube may vary greatly in its ability to perform.[1e] A type which we have found most satisfactory and which is reasonable in price is the DeVilbiss no. 40 apparatus. The nebulizer should be filled with 1 or 2 cc. of medication at a time, and care should be taken to see that the patient holds the nebulizer so that the opening does not direct toward the base of the tongue, but rather directly toward the posterior pharynx. If the patient tips it too far backward or upward, a great amount of medication is lost on the mucous membranes of the mouth. All stoppers should be removed from the nebulizer before aerosolization is started.

EXPERIMENT

Three types of nebulizer were used, and at least four of each model were employed. Sources of pressure were as follows: compressed air at 7½ pounds (3.4 Kg.); oxygen from a tank, flowing at 8 liters per minute, and pressure from two different types of vacuum cleaner. One was an upright tank type (vacuum cleaner 1), and the other was a horizontal tank type (vacuum cleaner 2). Medications used were as follows: distilled water; 1:200 isopropylepinephrine mixed in a propylene glycol base with small amounts of procaine, atropine and an ephedrine-like compound[2] included; and aqueous penicillin with 20,000 units per cubic centimeter. These were chosen since they were a representative group of the characteristic types of medication given by aerosol. It was felt that if the rather oily mixture of "aerolin" were well aerosolized, and the aqueous solutions also were well dispensed, most other medications likewise would do well in the apparatus. Exactly 2 cc. of the liquids was placed singly into the nebulizers, and each was weighed. They were then attached one after another to the pressure source being studied, which in turn was attached to the jug and tubing. Pressure was applied for exactly two minutes in most cases. If the 2 cc. of material was completely dispensed before two minutes had elapsed, the time was recorded. The nebulizers then were reweighed and measured in grams. A flow meter was placed at the end of the system where the nebulizer had been and pressure applied, both with and without the nebulizer in place. Flow in liters per minute with the nebulizer in place was recorded.

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[2] Eli Lilly & Company, Inc., Aerolin compound, solution no. 50.

RESULTS

It was found that the amount of medication delivered by the vacuum cleaner apparatus was not so great as that released in an equal time when air pressure or oxygen was used. However, a clinically acceptable stream of mist was delivered by the nebulizers when attached to the vacuum cleaner apparatus. The aerosol material released by oxygen or air pressure was about four times as great as that yielded from vacuum cleaner pressure. This, however, is not discouraging because aerosolization by oxygen pressure usually is not conducted at 8 liters per minute, but more likely at between 4 and 6 liters per minute. Furthermore, a considerable quantity of the material nebulized by air or oxygen is wasted no matter how it is dispensed.

SUMMARY

The prolonged use of nebulized medication has necessitated the development of some way in which aerosolization can be carried on in the patient's home. It has been shown that a nebulizer will dispense, by aerosol, medicaments such as penicillin and various sympathomimetic amines when attached to most modern models of vacuum cleaner in the manner outlined.

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The continued use of penicillin by inhalation over a long period of time may result in sore throat or irritation if given in too strong a concentration. We have found that penicillin when given by aerosol should be made from crystalline penicillin and should be administered in concentration usually no greater than 20,000 units per cubic centimeter. As a rule patients tolerate this strength of medication well.

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Howard A. Carter, *Secretary.*

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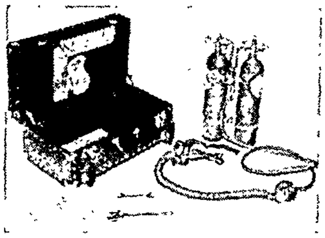
Model A is the lighter form of the apparatus, consisting essentially of the gauge assembly, the regulator proper, the connecting tube, and the mask. It weighs 2.6 kg. (5¾ lb.); for shipment it makes a package measuring 16 by 20 by 51 cm. (6 by 8 by 20 in.) and weighing 3.6 kg. (8 lb.). The foreign shipping weight (with wood shipping case) is 8.1 kg. (18 lb.).



Scott Demand Inhalator

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Evidence of satisfactory construction was obtained from sources acceptable to the Council. It was emphasized that the devices are effective with patients whose spontaneous breathing is sufficiently fast and deep, and in addition is useful as an adjunct to manual artificial respiration, but is not adequate (and is not intended) for use in patients whose breathing is very slow or very shallow. The Council on Physical Medicine and Rehabilitation voted to include the Scott Demand Inhalators, Models A and B, in its list of accepted devices.

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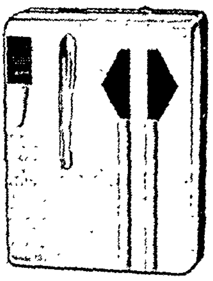

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HEARING AIDS AND ADVERTISING

The modern hearing aid is a triumph of electronic and acoustical engineering and Yankee ingenuity. Manufacturers of hearing aids are to be congratulated on their success. Electronically the modern hearing aid is essentially a small public address system except for size and weight. A hearing aid with batteries weighs as little as 5 to 10 oz., whereas a public address system may weigh as much as 25 to 50 lb. Many of the component parts of all makes of hearing aids are obtained from the same suppliers. One hearing aid manufacturer makes some of its vacuum tubes but in general the manufacturers buy them from one source. One manufacturer uses an electromagnetic microphone but most of the microphones are of the crystal type. The resistors, capacitors and other circuit components come from several sources and are similar to products used in other electronic instruments and devices. The outside case which houses the chassis is distinctive for each manufacturer and there are usually differences in the circuits that are employed. The modern electrical hearing aid is truly a significant achievement when one realizes that it has been less than 75 years since Bell invented the telephone.

Although the statistics are not clear, probably three million persons in the United States are sufficiently hard-of-hearing to need either hearing aids or lip reading or both. On the other hand, probably only 800,000 to one million hard-of-hearing individuals are willing to wear a hearing aid. The other two million are potential customers for hearing aids, and the manufacturers vie with one another to obtain their patronage. It also appears that these two million, if the estimate is correct, are not much interested in acquiring hearing aids. They probably have several reasons for not getting one. Three of these reasons are: 1. A sense of pride and a desire to conceal their hearing handicap. 2. They have a hearing defect which is not materially assisted by a hearing aid. 3. The first cost is too great.

It has not been many years since deafness and impairment of hearing occasioned ridicule and derisive laughter. The use of the old-fashioned trumpet provoked amusement, and some regarded the condition as a prelude to imbecility or senility. Therefore, it is little wonder that manufacturers of hearing aids today, bent on marketing their wares, make use of advertising with claims, sometimes implicit, often explicit, that "nothing shows," that "one's hearing is hidden," and that nothing is carried around that will reveal a handicapping hearing loss.

In the opinion of the Advisory Committee on Audiometers and Hearing Aids, this attitude is not a healthy one and can only lead to false hopes on the part of the prospective hearing aid wearer and to disappointment and bitterness which further handicap the hard-of-hearing person.

Advertising is for the purpose of announcing to the world that a manufacturer or dealer has a product or service to sell. In the words of the late Dr. Glenn Frank, "Advertising is the spark plug of industry." Advertising is also an educational medium. When advertising is used in its most ethical and commendable manner, it is an excellent educational medium. Thus publicity and propaganda can be used for good. But they can be used for evil too. The hearing aid industry is a highly competitive field and the method employed by most manufacturers to market hearing aids is through a dealer. The industry is dependent on the number of leads of prospective purchasers who can be reached. There seems to be a certain combination of credulity and optimism in the hard-of-hearing person, and, when alluring claims are made about secrecy and invisibility, these hard-of-hearing persons, eager to hear again and to satisfy their vanity, will answer but will be disappointed on learning of the deception. Even if the salesman is fortunate enough to sell an instrument, the hard-of-hearing individual will feel that he has been ensnared and misled.

During the last year or two, the Council has noted such phraseology as the following in advertising for various hearing aids:

"a fabulous new electronic ear which miraculously conceals deafness"; "no button in the ear"; "hide your deafness"; "you can hear better, farther and more clearly"; "the world's smallest hearing aid"; "the new invisible hearing aid"; "a new hearing aid is small, powerful and invisible"; "a revolutionary type of hearing aid"; "no batteries, no wires, it really is invisible"; "new miracle electronic ear hides deafness"; "let me show you how you can hear invisibly"; "you understand everything you hear"; "world's finest, smartest and smallest hearing aid"; "hear in secret."

The Council on Physical Medicine and Rehabilitation and its Advisory Committee on Audiometers and Hearing Aids must regard such clichés as misleading and unwarranted. The alleged concealment may amount only to the substitution of a flesh-colored tube for a wire.

The Council realizes that if manufacturers are to prosper in business they must sell hearing aids and encourage those who need hearing aids to buy them. However, the Council feels that misleading methods of persuading people to buy will not help but will have a tendency to pull down the level of integrity of the industry, and will strengthen the resistance that already exists in the minds of many hard-of-hearing individuals against buying the instruments.

The Council on Physical Medicine and Rehabilitation and its Advisory Committee on Audiometers and Hearing Aids believe that a great deal of misleading advertising and undesirable promotional activity can be remedied by a strong trade organization of the hearing aid manufacturers. Such an organization does exist, but it is new and is having its growing pains. Several years ago, Fair Trade Practices Codes for the Hearing Aid Industry were promulgated by the Federal Trade Commission. The general principles laid down in the codes would probably eliminate all or most of the advertising abuses if the manufacturers and dealers would pay more attention to them. The National Better Business Bureau is now working on a set of standards in cooperation with the American Hearing Aid Association.

The development of the truly effective hearing aids of the present day proved to be the most powerful factor in bringing about the virtual disappearance of quack devices from the market. In the same way it is to be hoped that the development of a more rational attitude on the part of the public toward hearing aids may bring about the disappearance of dishonest advertising. When people come to regard hearing aids as they now regard spectacles, there will be even less excuse than there is now for promotion by misrepresentation, and a hard-of-hearing person denied a hearing aid will complain as vehemently as would a myopic person denied spectacles. Some of the advertising in the past has made the hard-of-hearing person undeniably a victim and a dupe; a campaign of informative, educational advertising can put him in his rightful place as an intelligent person promptly availing himself of the latest products of modern electroacoustic laboratories.

The Council and its Advisory Committee will from time to time publish articles to call attention to misleading and unwarranted advertising of hearing aids. It will also continue its policy of recognizing well-made, ethically promoted hearing aids by publishing a list of instruments found acceptable.

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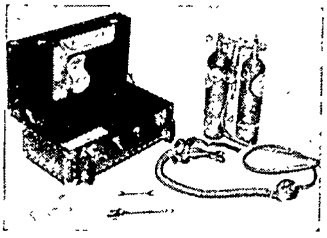

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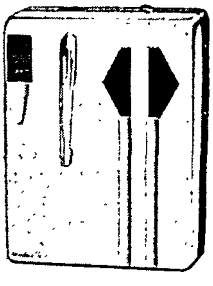

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"a fabulous new electronic ear which miraculously conceals deafness"; "no button in the ear"; "hide your deafness"; "you can hear better, farther and more clearly"; "the world's smallest hearing aid"; "the new invisible hearing aid"; "a new hearing aid is small, powerful and invisible"; "a revolutionary type of hearing aid"; "no batteries, no wires, it really is invisible"; "new miracle electronic ear hides deafness"; "let me show you how you can hear invisibly"; "you understand everything you hear"; "world's finest, smartest and smallest hearing aid"; "hear in secret."

The Council on Physical Medicine and Rehabilitation and its Advisory Committee on Audiometers and Hearing Aids must regard such clichés as misleading and unwarranted. The alleged concealment may amount only to the substitution of a flesh-colored tube for a wire.

The Council realizes that if manufacturers are to prosper in business they must sell hearing aids and encourage those who need hearing aids to buy them. However, the Council feels that misleading methods of persuading people to buy will not help but will have a tendency to pull down the level of integrity of the industry, and will strengthen the resistance that already exists in the minds of many hard-of-hearing individuals against buying the instruments.

The Council on Physical Medicine and Rehabilitation and its Advisory Committee on Audiometers and Hearing Aids believe that a great deal of misleading advertising and undesirable promotional activity can be remedied by a strong trade organization of the hearing aid manufacturers. Such an organization does exist, but it is new and is having its growing pains. Several years ago, Fair Trade Practices Codes for the Hearing Aid Industry were promulgated by the Federal Trade Commission. The general principles laid down in the codes would probably eliminate all or most of the advertising abuses if the manufacturers and dealers would pay more attention to them. The National Better Business Bureau is now working on a set of standards in cooperation with the American Hearing Aid Association.

The development of the truly effective hearing aids of the present day proved to be the most powerful factor in bringing about the virtual disappearance of quack devices from the market. In the same way it is to be hoped that the development of a more rational attitude on the part of the public toward hearing aids may bring about the disappearance of dishonest advertising. When people come to regard hearing aids as they now regard spectacles, there will be even less excuse than there is now for promotion by misrepresentation, and a hard-of-hearing person denied a hearing aid will complain as vehemently as would a myopic person denied spectacles. Some of the advertising in the past has made the hard-of-hearing person undeniably a victim and a dupe; a campaign of informative, educational advertising can put him in his rightful place as an intelligent person promptly availing himself of the latest products of modern electroacoustic laboratories.

The Council and its Advisory Committee will from time to time publish articles to call attention to misleading and unwarranted advertising of hearing aids. It will also continue its policy of recognizing well-made, ethically promoted hearing aids by publishing a list of instruments found acceptable.

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PREVENTION OF CHRONIC DISEASE

The recent National Conference on Preventive Aspects of Chronic Disease,[1] convened by the Commission on Chronic Illness, demonstrated remarkable enthusiasm on the part of many national agencies and persons representing different professional fields, for working together on what has been aptly termed the common denominator aspects of chronic illness. Prevention, including the detection of asymptomatic chronic disease, is one such common denominator, because many chronic diseases have common causative factors or common causative settings, such as genetic factors, nutritional disturbances, emotional and environmental stress, and occupational causes. The conference represented a concentrated, concerted effort to explore avenues for more effective application of what is already known regarding the prevention of the major chronic diseases through control of known etiologic factors and through treatment of the earliest identifiable stages of these diseases. The final reports of the 12 working committees of the conference have now been prepared and sent to the conference participants. The commission has announced that a summary and a complete transcription of the conference proceedings and reports will be published.

A review of these reports reveals much thoughtful comment and many recommendations which deserve careful attention. In view of the current controversy over "screening," particularly "multiple screening," as a detection technique, the reports of two committees of the conference—on evaluation of detection and on detection in private practice—may be singled out as examples of the conference deliberations.

The Committee on Evaluation of Detection begins its report by defining screening tests as "procedures which sort out those who probably have abnormalities from those who probably do not." A complete periodic physical examination for every person is considered impracticable because of its expense and the limited number of physicians; therefore, rapid, inexpensive screening measures are needed. Their primary purpose is to bring persons with disease to physicians at an earlier stage than would otherwise be true. Although many such tests are now available, there is urgent need for their evaluation, with respect to the following criteria: 1. Reliability: How consistent are the results obtained by different techniques, at different times and under ordinary "field" conditions? 2. Validity: How often is the test right as determined by some final diagnostic process? 3. Yield: How many previously known and how many unknown cases are discovered by the tests? 4. Cost: What is the cost per test or per case found, in money and professional time? 5. Acceptance: How acceptable is the procedure to the public, the profession and to community agencies? The report stresses the need for insuring follow-up by physicians on presumptive "positives" but warns against unduly increasing the case-load on physicians through too extensive a screening program. The committee emphasizes the importance of evaluating emotional and psychological concomitants of the screening procedure and urges further study of this subject. Other points considered in need of special investigation are (1) how often screening tests should be repeated, (2) the effects of multiple screening projects on single screening programs, and (3) the practical limits of validity required for each disease and screening test, taking into account the prevalence and incidence of the disease, the expense of carrying out definitive diagnostic procedures and the psychological hazards involved, for example, in falsely indicating the possible presence of cancer.

The Committee on Detection in Private Practice distinguishes between detection and screening by terming the latter the "presumptive," rather than the definitive, "identification of ordinarily unrecognized disease." Important chronic diseases which can be detected at an early or "latent" stage are certain forms of cancer, certain forms of heart disease, (congenital, rheumatic, syphilitic), hypertension, malnutrition, obesity, visual defects, glaucoma, hearing defects, epilepsy, syphilis, diabetes, and pulmonary tuberculosis. The committee warns that detection of latent disease may have undesirable psychological effects if not carefully handled to insure that the patient does not exaggerate or misinterpret its significance. The committee's chief recommendation is that all physicians carry out detection in their own offices by utilizing the following procedures: (1) history, (2) physical examination, and (3) laboratory tests. However, recognizing the serious practical limitations to this recommendation, the committee suggests that mass screening tests be made available to physicians, as a service to which they may refer their patients. The committee listed 16 procedures or tests that could be incorporated into such a program.

These reports call attention to the fact that screening and detection, with some notable exceptions (such as chest x-ray on hospital admission), have been advocated largely with reference to the nonpatient population, and thus out of the normal physician-patient relationship. Although all "positive" cases are referred for final diagnosis to a physician, this attempt to establish a patient-physician relationship often fails. In view of the probably much higher "yield" of detection procedures when applied to persons who are already seeking medical care, Levin [2] has suggested that greater effort and attention be expended on this type of detection, which may be termed "*clinical detection*,"[2] in addition to the nonclinical variety. While the value of case-finding among persons who are not under medical care is not questioned, it is probable that greater concentration for this purpose on persons who seek medical care would yield greater dividends in the prevention and control of chronic disease.

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[1] National Conference on Chronic Disease: Preventive Aspects, Chicago, March 12-14, 1951.

[2] Levin, M. L.: The Detection of Chronic Disease, presented at the Annual Meeting of the National Tuberculosis Association, Cincinnati, May 17, 1951.

THE BARUCH COMMITTEE ACHIEVES ITS GOALS

The announcement, on May 26, that the Baruch Committee on Physical Medicine and Rehabilitation had attained its objectives and was discontinuing its activities offered a magnificent example of the manner in which a voluntary effort toward the advancement of an important phase of medical practice can still be achieved in a free country by a willing group of workers. In this instance, the generosity of one person, Mr. Bernard M. Baruch, and the efforts of a group of medical scientists were responsible for extensive developments in the treatment of disease by physical agents and in the rehabilitation of disabled persons. The members of the Baruch Committee include Dr. John F. Fulton, Yale University; Dr. Charles G. Heyd, Columbia University; Dr. Andrew C. Ivy, University of Illinois; Dr. Frank H. Krusen, University of Minnesota (chairman); Dr. Chauncey D. Leake, University of Texas; Dr. Frank R. Ober, Harvard University; Dr. Winfred Overholser, St. Elizabeths Hospital, Washington, D. C.; Dr. Howard A. Rusk, New York University; Dr. Alfred R. Shands Jr., Alfred I. duPont Hospital for Crippled Children, Wilmington, Del.; Dr. Francis O. Schmitt, Massachusetts Institute of Technology; Dr. William S. Tillett, New York University, and Dr. Arthur L. Watkins, Harvard University. It is gratifying to note that Mr. Baruch's support of this new branch of medical practice will continue and that he has stated it will be his object to make further grants "to those who undertake the work with enthusiasm and beneficial results."

The activities of the Baruch Committee have been largely instrumental in bringing about (1) a marked increase in the teaching of physical medicine and rehabilitation in the medical schools of America, (2) an extensive increase in the number of residencies in physical medicine and rehabilitation, (3) advances in the rehabilitation of many thousands of wounded soldiers and sailors as well as still greater numbers of persons injured in civilian life, (4) recognition of the medical specialty of physical medicine and rehabilitation, (5) establishment of a new Section on Physical Medicine and Rehabilitation in the American Medical Association, (6) organization of an American Board of Physical Medicine and Rehabilitation to certify qualified specialists in the field, (7) stimulation of the establishment of community rehabilitation centers throughout the country, (8) clarification of the standards for determination of physical fitness of the workers of the nation, and (9) improvements in the teaching of medical physics.

One of the leading medical educators in this country commented: "Certainly I do not think that, in this country, any similar effort in medicine has achieved so great a degree of success in so short a period of time." Dr. Frank H. Krusen, chairman of the committee, assuredly was justified in stating, when he thanked his associates, "Mr. Baruch's generosity and your labors have been humanitarian contributions of tremendous magnitude toward the welfare of our democracy."

The success of this project is of especial significance at this particular time, when various leaders of medicine, education, statesmanship, and industry are embarking on a similar private enterprise in aid to medical education by establishing the National Fund for Medical Education. The successful completion of the work of the Baruch Committee presents definite proof of the fact that it is still possible to obtain significant advances in medical practice, teaching, and research in the voluntary American way. If the generosity of one philanthropist and the efforts of a relatively small group of medical scientists can accomplish so much, all who are interested in the free practice of medicine should look with assurance to the new National Fund for Medical Education, which has already received the generous financial support of many persons. Through the active efforts of medical scientists and others, it can achieve unlimited success.

POSTPARTUM NECROSIS OF THE PITUITARY

Simmonds[1] in 1914 described a man with clinical symptoms suggestive of hypopituitarism and postmortem lesions the essential feature of which was the destruction of the pituitary. The syndrome represented a condition of insufficiency of the anterior lobe of the pituitary. Conditions capable of causing necrosis of the pituitary consist of tumors, cysts, gumma, massive tuberculous necrosis, granulomas of unknown etiology, hypophysectomy and healed postpartum necrosis of the anterior lobe of the pituitary.

Sheehan[2] described massive focal atrophy of the anterior pituitary, which occurs only in women and is nearly always of postpartum origin. The lesion is an ischemic necrosis similar in type to an infarct and occupying most of the anterior lobe. Sheehan reported 13 cases of fresh pituitary necrosis and one of healed pituitary necrosis observed in the course of two years at the Glasgow Royal Maternity and Women's Hospital. The necrosis was found in patients who died at any time from 14 hours post partum onward. Hemorrhage and collapse at delivery were present in all of his cases. According to Sheehan, the anterior pituitary hypertrophies normally during pregnancy to two or three times its normal size. The gland involutes rapidly during the puerperium. Presumably there is a sudden reduction of the blood flow to the gland at about the time of delivery, owing to severe hemorrhage. If, in addition, there is a severe general circulatory collapse, the blood flow to the anterior pituitary may for a short time be reduced almost to nothing. This may cause thrombosis in the sinuses of the gland, which in turn may lead to necrosis of the tissue.

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[1] Simmonds, M.: Über Hypophysisschwund mit tödlichem Ausgang, Deutsche med. Wchnschr. 401: 322, 1914.

[2] Sheehan, H. L.: Post-Partum Necrosis of the Anterior Pituitary, Edinburgh M. J. 45 tr.: 13 (March) 1938

Escamilla and Lisser[3] collected from the literature 595 cases with "more or less suggestive" evidence of Simmonds' disease. The diagnosis was established both clinically and pathologically in 101. The occurrence of loss of weight, amenorrhea and a low basal metabolic rate in a woman whose symptoms date from postpartum hemorrhage and collapse warrants, in their opinion, a clinical diagnosis of Simmonds' disease. They emphasize the frequent confusion of Simmonds' disease with anorexia nervosa. The latter usually occurs in young girls in the absence of a history of pregnancy. The condition not infrequently clears up with proper psychiatric and nutritional therapy.

Sheehan[4] in 1949 reported on autopsies in 95 cases culled from the literature and considered by him as definite examples of chronic severe hypopituitarism. These cases presented severe chronic fibroid lesions of the anterior pituitary, intracellular cysts and tumors and surgical hypophysectomies. The clinical symptoms and pathological lesions in these cases were compared with the various findings in 70 cases of clinical postpartum necrosis of the pituitary. Severe deficiency of the pituitary function is manifested clinically, according to Sheehan, by a syndrome made up of the following characteristics: in many cases a history of severe circulatory collapse as result of hemorrhage and shock at a delivery; atrophy of the gonads and genital tract with complete amenorrhea; impotence and loss of libido; complete loss of pubic and axillary hair; absence of normal skin pigment; a typical flabby facies with thinning of the eyebrows and pallor; increased sensitivity to cold; weakness; mental torpidity with slow speech; a low basal metabolic rate; very low urinary excretion of 17-ketosteroids; insulin sensitivity and hypoglycemia unresponsiveness, and a tendency to spontaneous hypoglycemia and coma. Sheehan stresses that patients with hypopituitarism face the grave danger of a particular type of coma which is often fatal.

Cook and co-workers,[5] in a recent publication, reported on seven cases of postpartum necrosis of the anterior pituitary observed at the university hospitals of the State University of Iowa during the period of 1935 to 1950. The diagnosis in four was verified by autopsy. A history of collapse from severe hemorrhage during the last delivery was obtained in six. In five of the six cases with adequate history there was amenorrhea with complete loss of sexual function and libido. These authors point out that, while anorexia may develop, it is not an important symptom and is never as extreme as in anorexia nervosa. They also stress the observation made previously by Sheehan, that cachexia and emaciation are not commonly seen in Simmonds' disease.

The treatment of anterior pituitary necrosis has thus far been disappointing. A replacement of the hormonal secretions with anterior pituitary extracts has not been efficacious. Knowlton[6] reports only "minimal changes" in a patient with long-standing hypopituitarism who was given corticotrophin (ACTH) during 10 days. Cook and his co-workers report good response in one patient from small doses of cortisone supplemented by high sodium chloride dietetic intake and thyroid medication. The role of both corticotrophin and cortisone in the treatment of pituitary insufficiency has not yet been determined. The best treatment so far seems to be prophylaxis, with better recognition and correction of the complications of pregnancy that lead to collapse during delivery.

NONTOXIC INFLUENZA VACCINE

McKee,[1] of the University of Iowa department of bacteriology, reports the production of a nontoxic variant of influenza A virus, with immunizing properties superior to those of routine toxic influenza A virus. The virus used in this study was originally isolated from the 1943 outbreak in Iowa City and had been passed repeatedly in chick embryos but had never been in mice. Two methods of subculture were adopted. By the first method, 0.5 cc. of freshly harvested undiluted allantoic fluid (hemagglutination titer 1:6,400) was inoculated into the allantoic sac of a 11 day old chick embryo. By the second method similar inoculation was made with a 1:10,000 dilution of the same fluid. All inoculums contained 500 units per cubic centimeter of pencillin and streptomycin.

After 24 to 48 hours of incubation at 37 C., the hemagglutination titer was the same (1:6,400) in both series. The two series, however, differed widely in mouse toxicity. After the use of the dilute inoculum, the virus retained its original pathogenicity, almost invariably killing mice in two to three days followng intranasal injection, with autopsy showing almost complete pulmonary consolidation. After use of the undiluted inoculum, the virus was nonpathogenic, few if any symptoms being shown on intranasal inoculation in mice, whose lungs almost invariably were free from demonstrable lesions.

Used as primary vaccines in mice, the two viruses stimulate the production of almost identical antibody titers. As booster vaccines, however, the nontoxic variant is twice as effective as the toxic culture. In a typical experiment, the antibody level (hemagglutination-inhibition) rose to 5,120 units after a toxic booster inoculation and to 10,240 units after a nontoxic inoculation.

Clinical tests were made on 200 student volunteers. Each was given 1 cc. of formalized virus subcutaneously. Two weeks later, the antibody titer had risen to an average of 3,667 units after the toxic injection and to 5,216 units after the nontoxic injection. Twenty per cent of the

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[3] Escamilla, R. F., and Lisser, H.: Simmonds' Disease: A Clinical Study with Review of the Literature; Differentiation from Anorexia Nervosa by Statistical Analysis of 595 Cases, 101 of Which Were Proved Pathologically, J. Clin. Endocrinol. 2: 65 (Feb.) 1942.

[4] Sheehan, H. L., and Summers, V. K.: The Syndrome of Hypopituitarism, Quart. J. Med. 18: 319 (Oct.) 1949.

[5] Cook, J. E.; Bean, W. B.; Franklin, M., and Embick, J. F.: Postpartum Necrosis of the Anterior Lobe of the Pituitary Gland: Sheehan's Disease, A. M. A. Arch. Int. Med. 87: 517 (April) 1951.

[6] Knowlton, A. I.; Jailer, J. W.; Hamilton, H., and West, R.: Effects of Pituitary Adrenocorticotrophic Hormone (ACTH) in Panhypopituitarism of Long-Standing and in Myxedema, Am. J. Med. 8: 269 (March) 1950.

[1] McKee, A. P.: J. Immunol. 66: 150 (Feb.) 1951.

100 students given the toxic vaccine had reactions such as general malaise, muscular aches, headache, or fever. Of the 100 students given the nontoxic virus, only 5% experienced similar discomforts. Marked reduction in the toxicity of the influenza virus following large inoculums into chick embryos was previously reported by Kempf and Harkness [2] of the University of Illinois.

MEETING OF THE SUBCOMMITTEE ON STEROIDS AND CANCER

The recently concluded two-day meeting of the Subcommittee on Steroids and Cancer at American Medical Association Headquarters demonstrated that the collaborative study sponsored by the Subcommittee has evolved into an efficient reliable method for evaluating cancer therapy. Criteria for selecting cases of mammary cancer to be treated with the hormones, recommendations for optimum dosage schedules, and delineation of the advantages and shortcomings of this form of therapy have evolved as a result of the study, which was begun four years ago. The Subcommittee on Steroids and Cancer is a subcommittee of the Committee on Research of the Council on Pharmacy and Chemistry. At this year's sessions, 64 assembled oncologists initially heard an analysis of the pooled results of their reports to the Committee on Research and then engaged in panel discussion of the mechanism of action of the steroid hormones in mammary cancer. On the second day, the influence of the steroid hormones on neoplasms of the genitourinary tract and bone and newer developments in cancer research and therapy were discussed.

Review of the proceedings indicates that the role of the androgens and estrogens in the treatment of mammary carcinoma has been thoroughly assessed; therefore, widening of the scope of investigation to seek new cancer-inhibiting agents and new fields of application of the hormones seems desirable. Equivocal results were reported in hormone therapy of cancer of the cervix, endometrium, and ovary. More extensive study and analysis of pooled results are required before an opinion can be formed of the value of this therapy.

In addition to the sex steroids, cortisone and corticotrophin (ACTH) were tested in terminal cases of various types of neoplasia. These agents allay pain and induce a feeling of well-being but do not alter the course of the disease. In several cases, despite the subjective response and improved appearance of the patient, there was evidence of more rapid spread of the neoplasm and autopsy later even revealed that the spleen was riddled with metastases.

Tracer studies with radioactive estrogen in mammary cancer showed higher concentration of radioactivity in the involved breast tissue than in random samples from other tissues. Attempts at total pituitary inhibition by irradiation were unsuccessful as evidenced by 17-ketosteroid excretion, the corticotrophin and epinephrine tests, radioactive iodine up-take, basal metabolic rate, and gonadotropic assay. In another series, similarly treated, amenorrhea developed in several patients.

Total adrenalectomy was advocated to control increased adrenal androgen excretion in patients with prostatic cancer who had had prior orchectomy and estrogenic therapy. This may be a feasible procedure, since adequate adrenocortical substitution therapy is now available. The resultant cessation of androgen excretion may permit a longer period of control of the lesion.

Of diagnostic and prognostic importance was a report concerning variation in blood serum levels of the two antiproteases (antichymotrypsin and antirennin) in normal subjects and in cancer patients. Normal values range up to 5 West units for antichymotrypsin and above 5 units for antirennin. In cancer patients, these values tend to reverse, the antirennin titer dropping below, and the antichymotrypsin titer rising above, 5 units. The patient's response to therapy may be judged by rise in antirennin and fall in antichymotrypsin titer. These investigations of enzyme systems are merely preliminary and require tests in other chronic diseases, but they may disclose something of the nature of fundamental cancer-inhibiting mechanisms.

The investigators and the subcommittee are to be commended for their zeal and enthusiasm in pursuing these studies. They have not only established a pattern for future investigations of fundamental medical problems but also have demonstrated the ability of physicians to carry on a voluntary, cooperative, scientific research project during peacetime.

A complete transcript of the proceedings of the Second Spring Conference on Steroid Hormones and Mammary Cancer will be published in a limited edition for distribution to the investigators and other interested persons.

CONTRIBUTIONS TO FOUNDATION DEDUCTIBLE

At the time the American Medical Education Foundation was established, application was made to the Commissioner of Internal Revenue requesting that he declare the Foundation exempt from federal income tax, on the basis that it is a corporation organized and operated exclusively for educational purposes. This application has now been acted upon, and the Commissioner has ruled that the Foundation is exempt from federal income tax under Provision 101 (6) of the Internal Revenue Code for the year 1951. This ruling means that contributions received by the Foundation in 1951 are deductible by the donors in computing their taxable net income in the manner and to the extent provided by Section 23 (o) and (q) of the Code.

This prompt ruling by the Commissioner should stimulate further support of the Foundation, since contributors are now assured that their contributions are deductible. Physicians desiring to make a donation to the Foundation will find a convenient contribution form included in the Foundation's announcement on pages 28 and 29 in the advertising section of this issue of THE JOURNAL.

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[2] Kempf, J. E., and Harkness, E. T.: Proc. Soc. Exper. Biol. & Med. 75: 80 (Oct.) 1950.

ORGANIZATION SECTION

THE WORLD MEDICAL ASSOCIATION—MEETING OF THE COUNCIL IN GENEVA

The Council of The World Medical Association held its mid-year session at Geneva, Switzerland, April 29 to May 6, 1951. The council, which is the governing body of the association between sessions of the General Assembly, meets twice a year. There are 12 nations represented in the membership of the council.

One of the most important events of the meeting was a two-day conference between officials of The World Medical Association and officials of the World Health Organization. This conference consisted of an informal exchange of views on important problems of mutual interest.

The topics covered by the discussions included the possibility of holding an international conference on questions of professional and technical education. It was agreed that tentative plans for such a conference would be submitted to the governing bodies of WHO and WMA. The purpose of the conference, which will be held in either 1952 or 1953, would be to stimulate the improvement of standards of training for medical and related personnel. This is a problem which both WHO and WMA consider essential in view of the urgent needs of underdeveloped regions for larger numbers of health personnel.

Other topics discussed included (1) measures to promote the free flow of essential medical supplies between countries and the difficulties caused by shortages resulting from the present world situation; (2) assistance to be given to WHO by The World Medical Association in the selection of suitable experts for work in various fields; (3) exchange of information and documentation on subjects of common interest, and contributions by each organization to publications of the other; (4) cooperation of The World Medical Association in assuring the widest possible adoption of international non-proprietary names recommended by WHO for drugs and pharmaceutical products with due recognition of recommendations of the discoverers of the products; (5) assistance of WHO, through its various publications, in making known the "International Code of Medical Ethics" adopted by The World Medical Association, and (6) representation of The World Medical Association in regional conferences of WHO.

The medical associations of Western Germany and Japan were elected to membership in The World Medical Association after a canvas had been made of the opinions of all member associations. It was brought out clearly that both applicants had gone on record as decrying war crimes and accepting the principles enunciated in the Declaration of Geneva as applying to all their members, present and future.

The Japan Medical Association adopted the following resolution March 30, 1949:

> "That the Japan Medical Association, representing the doctors of Japan, takes this occasion to denounce atrocities perpetuated on the enemy during the war period, and to condemn acts of maltreatment of patients which are alleged and in some cases known to have occurred.
>
> A. Takahashi, M.D.,
> President,
> The Japan Medical Association"

The Western Germany Medical Association adopted the following statement on Jan. 28, 1950:

"The German medical profession had to acknowledge with indignation and with deep regret the participation, during the time of the Third Reich, of certain German doctors, both individually and collectively, in numerous acts of cruelty and oppression, and in the organization and perpetration of brutal experiments on human beings without their consent. We acknowledge that, in performing these acts and experiments, which have resulted in the deaths of millions of human beings, the German medical profession has violated the ethical tradition of Medicine, has debased the honor of the medical profession, and has prostituted medical science in the service of war and political hatred. The convicted criminals have been punished, some by Allied, others by German Courts.

"We express our regret that the system of dictatorship rendered impossible insight into these occurrences and has strangled every expression of free opinion. We hereby declare that we abhor and reject the crimes perpetrated since 1933 in Germany and in other countries by members of our profession.

"In making this statement to the WMA we solemnly promise the medical profession and the whole world that we will do all we can to prevent in the future such a betrayal of medicine through German doctors. We hereby repeat our resolution adopted on October 18, 1947, on our initiative and published thereafter and refer to the reports issued by the "Arbeitsgemeinschaft Westdeutscher Aerztekammern" concerning the Nuremburg trials against 20 SS doctors, scientists and three high officials and to our position expressed in this publication. The German medical organization will do its best to prosecute medical men who shall be found guilty of offenses against their professional duties by professional jurisdiction. We shall act in the same manner against doctors who are not willing to promise a high standard of professional behavior in the future.

"Accordingly, the '52 Deutsche Aerztetag' in altering its professional regulations has required every doctor to subscribe to the Declaration of Geneva adopted by the W.M.A. in Geneva in 1948."

This statement was signed by Drs. Neuffer, Borck, Rodewald, Rieder, Stockhausen, Weiler and Weise, for the Arbeigsgemeinschaft der Westdeutschen Arztekammern.

Under the provisions of Article 6 II of the Constitution and Article 7 of the By-Laws, the Bulgarian Medical Association was announced as dropped from membership in The World Medical Association.

The number of national associations now members of The World Medical Association is 41. Applications were received or were announced as forthcoming from five other associations.

Reports were received from the assistant secretaries for Asia, Europe and Latin America as to conditions in their respective areas.

An extended discussion took place on social security as it affects medical practice and a progress report from the committee on that subject was accepted.

The Committee on Medical Education presented an important report and, following lengthy discussion, the Council voted to find ways and means of calling a World Conference on Medical Education in 1953. Other international organizations will be asked to participate. The tentative agenda for the conference will cover the following points: (*a*) What is the aim of undergraduate medical education? (*b*) What should be the requirements for entrance into medical school? (*c*) What should be the general character of the curriculum after entrance?

In discussion of these points, many details will be considered. The place of the conference will be somewhere in Europe.

The Council decided to study further the subject of medical certification to see what, if anything, can be done to simplify and standardize such certificates.

The council studied in detail the proposal to establish an International Centre for the Study of Medical Jurisprudence. This proposal envisages that such a center would recommend, encourage and undertake studies of comparative medical jurisprudence, and draw conclusions from such studies and draft proposals concerning medical jurisprudence in both peace and war.

While the Council has no objections to the establishment of such a center for purposes of collecting and distributing information, it feels very definitely that such a center composed as it would be of those qualified to speak for only a small portion of the medical profession, would greatly exceed its prerogatives if it endeavored to lay down regulations governing the medical profession in peace and war.

The World Medical Association has already established an International Code of Medical Ethics. It is qualified to speak for well over 500,000 physicians and it has in its membership the national medical associations of 41 countries. If the Code requires any elaboration to cover a war-time situation, the organizations most qualified to discuss the matter are The World Medical Association, the World Health Organization, the International Committee of the Red Cross, and the League of Red Cross Societies, and certainly not the organizations concerned in establishing this proposed center. A resolution was drafted setting forth the opinion of the Council and is to be sent to all member associations and other organizations having any real or fancied interest in the subject.

Means of cooperation with the International Committee of the Red Cross, the League of Red Cross Societies, and the International Council of Nurses, as well as with the World Health Organization, were elaborated. Numerous matters of routine business were transacted and committee reports on miscellaneous subjects were discussed.

Because of the illness of the chairman, Dr. T. C. Routley of Canada, the meetings were presided over by the vice chairman, Dr. Pierre Glorieux of Belgium.

The social events in connection with the meeting were as follows: a reception tendered by the officials of the city of Geneva, a dinner by the Geneva Medical Society, a reception and dinner at Berne by the Federation des Medecins Suisses, receptions by the International Committee of the Red Cross, the League of Red Cross Societies, and receptions by various individuals resident in Geneva.

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect reregistration on or before July 1 to avoid a penalty. Each year, despite the annual warnings in THE JOURNAL, this requirement is overlooked by some physicians, and unpleasant consequences follow. Failure to register adds a penalty of 25% to the tax payable and, in addition, subjects the physician to the possibility of a fine not exceeding $2,000 or to imprisonment for a maximum of five years, or to both. The commissioner of internal revenue has in past years given some tardy registrants the choice of paying sums by way of compromise, a procedure authorized by law, or accepting criminal prosecution. If this procedure does not produce the required promptness in reregistration, the commissioner will have no choice but to institute criminal prosecution.

DR. ALBRIGHT RECEIVES GOLDBERGER AWARD

Dr. Fuller Albright, associate professor of medicine at Harvard Medical School, Boston, received the Joseph Goldberger Award in clinical nutrition for his continuing studies in the field, on June 13 during the Harvard Medical Alumni Association dinner in Atlantic City. The award, a gold medal and $1,000, named after the late Dr. Joseph Goldberger, who did pioneer work on pellagra in the southern states, was established to honor physicians who have made important contributions to the knowledge of nutrition and is made periodically by the American Medical Association to stimulate research in the field.

MEDICAL LEGISLATION

STATE

Alabama

Bills Introduced.—H. 239, proposes regulations for the sterilization of mentally inferior, mentally deficient or feeble minded inmates in the Partlow State School for Mental Deficients. H. 308, proposes regulations providing a state scholarship program to promote the education of nurses. H. 315, proposes to provide a state scholarship program to promote the education of Negro nurses. H. 316, proposes an appropriation to provide facilities for a nurses' educational program in certain tuberculosis sanatoriums of the state.

California

Bills Enacted.—A. 1504 has become Chapter 580 of the Laws of 1951. It amends the Welfare and Institutions Code by adding regulations relating to epileptics, among which are provisions making it possible to commit such persons to state hospitals when they are in need of treatment or when they are suffering from mental illness in addition to epilepsy. S. 129 has become Chapter 540 of the Laws of 1951. It authorizes the State Department of Public Health to Prescribe and promulgate minimum standards of safety and sanitation in the physical plant, and of diagnostic, therapeutic and laboratory facilities for public medical institutions and to certify to the State Department of Social Welfare those institutions which meet the standards established.

Connecticut

Bill Introduced.—H. 1705, proposes to broaden the scope of the Connecticut Medical Service Plans so as to include certain types of dental surgery.

Bill Enacted.—H. 549, has become Public Act No. 49. It amends the narcotic act by defining the word "opiate" as including all synthetic drugs having addiction-forming or addiction-sustaining properties similar to morphine and so proclaimed by the president of the United States under the provisions of the federal narcotic law.

Florida

Bills Introduced.—H. 926, proposed the enactment of a child molester act, which would provide, among other things, for the psychiatric examination by two licensed psychiatrists of persons convicted under the act. Such psychiatrists should have had at least five-year exclusive practice in the diagnosis and treatment of mental disorders. H. 1062, proposes the creation of a special hospital district for Volusia County, Florida. H. 1332, proposes to authorize certain judges and county solicitors throughout the State to secure the services of a physician in connection with the investigation of crime or under circumstances where such services are deemed necessary for the investigation of crime. It also proposes to fix the fee to be paid to such physicians for the services which they render. H. 1385, proposes to authorize the Board of County Commissioners of Saint Lucie County to enter into contracts to provide and secure insurance on the employees of the county and the members of their family, which insurance shall provide funds to defray medical, surgical, hospital, and other similar expenses for such persons. H. 1440, proposes the creation of a special hospital district for Broward County, Florida. S. 876, proposes to authorize the City of Miami Beach, Fla., to establish a health plan for officers and employees of the city and their families.

Bill Enacted.—H. 150 became law without approval, May 22, 1951. It provides that any doctor or other practitioner of any of the healing sciences making a physical or mental examination of any person shall, upon request of such person, his guardian, curator or personal representative in the event of his death, furnish copies of all reports made of such examination or treatment. Such reports would not be furnished, however, except upon the written authorization of the patient, to any person other than his guardian, curator or personal representative.

Maine

Bill Enacted.—H. 869 was approved May 21, 1951. It provides an appropriation for the purpose of supplying materials in connection with the accumulation, storage and maintenance of 5,000 units of liquid plasma and 500 units of dried plasma to be available in the event of a disaster.

New Jersey

Bill Enacted.—A. J. R. 14 has become Joint Resolution No. 8 of the Laws of 1951. It creates a commission to examine and make a study of the laws dealing with the sale, dispensation, and distribution of narcotics.

Texas

Bill Enacted.—H. J. R. 38 was adopted May 17, 1951. It proposes an amendment to the Constitution providing for the establishment of a state medical education board and a state medical scholarship fund from which grants, loans, or scholarships may be made to students desiring to study medicine, provided such students shall agree to practice in rural areas of the state.

This summary was prepared by the Bureau of Legal Medicine and Legislation.

MEDICAL NEWS

CALIFORNIA

Medical Officer at San Quentin.—Dr. Morton D. Willcutts, Bethesda, Md., has been appointed chief medical officer for San Quentin Federal Prison to replace Dr. Leo L. Stanley, who recently retired after many years' service to the penitentiary. Dr. Willcutts, who retired from the navy after World War II with 34 years' active duty, began his new duties April 16.

Southern California Gastroenterologists.—The Southern California Society of Gastroenterology was organized in September, 1950, with subsequent meetings in November, January, and March. Drs. Albert M. Snell, Palo Alto; Donald C. Balfour, Rochester, Minn., and Walter L. Palmer, Chicago, have addressed the society. Meetings are scheduled on alternate months at the auditorium of the Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles. Present officers of the society are Dr. William C. Boeck, president; Dr. Grant Harold Lanphere, vice president, and Dr. Harold L. Thompson, secretary-treasurer, all of Los Angeles. Those interested in joining the society should make application to the Secretary, 2202 W. Third St., Los Angeles 5.

Dr. Legge Receives Knudsen Award.—Dr. Robert Thomas Legge, professor emeritus of hygiene and former university physician on the Berkeley campus of the University of California, has received the William S. Knudsen Award from the American Association of Industrial Physicians and Surgeons. The honor, given only eight times in 36 years, was presented to Dr. Legge during the association's 36th annual meeting in Atlantic City, N. J., in April. As university physician Dr. Legge organized a students' health service and inaugurated a system of medical records that has long been a model. In 1930 he planned the Ernest V. Cowell Memorial Hospital. As lecturer in industrial medicine at the university's medical school, he established courses in industrial health. Dr. Legge organized the section on industrial medicine of the California State Medical Association and was its first chairman. He was one of the organizers and first presidents of the Western Association of Industrial Physicians and Surgeons and was first president of the Pacific Section of the American College Health Association. For 11 years he has been associate editor of *Industrial Medicine and Surgery.*

CONNECTICUT

Alcohol Clinic.—A full-time outpatient service for diagnosis and treatment of alcoholism is in operation in Waterbury. Dr. Daniel O. Sayers is in charge of the clinic program and is assisted by a full-time mental hygienist, a consultant psychologist, and a secretary. It is anticipated that the clinic will become integrated in the total public health services of the community. Cooperation will be extended to all public and private agencies, to physicians, the clergy, personnel officers in industry, members of Alcoholics Anonymous, and to others who are called on to deal with the alcoholic.

Diabetes Detection Report.—More than 20,000 tests were conducted during the 1950 annual Diabetes Detection Drive sponsored by the Connecticut Diabetes Association in cooperation with the state medical society and the state department of health. The program produced more than 500 positive urine specimens, 251 of which concerned individuals not previously known to be diabetic. The number of tests represented an increase of 63 per cent over the 12,000 tests conducted in 1949. Private physicians conducted 2,917 tests; local health departments or testing stations, 10,534, and industrial medical departments, 2,095. The 1950 tests covered 1 per cent of the state population as compared to 0.6 per cent tested in 1949. Analysis of positive specimens by age groups indicates 12.1 per cent under 15 years, 13.7 per cent from 15 to 40 years, 19 per cent over 40 years, with age not stated in 55.2 per cent of the cases. Positives by sex disclose a higher percentage for women, 54.5 per cent, as compared to 45.5 per cent for men. The large increase in positive specimens among children under 15 years of age, from 2.5 per cent of the total positives in 1949 to 12.1 per cent in 1950, can be accounted for by the large number of school children tested in New Haven County during the 1950 drive.

ILLINOIS

Society Election.—The 1951-1952 officers of the Illinois Association of Medical Health Officers are: Drs. Leroy L. Fatherree, Joliet, president; Edward A. Piszcek, Chicago, vice president, and Herbert S. Ratner, Oak Park, secretary-treasurer. The association consists of full-time public health physicians.

Personal.—Kenneth J. Franklin, D.Sc., professor of physiology at the University of London, St. Bartholomew's Hospital Medical College, has been appointed visiting professor of physiology at the University of Illinois for the academic year beginning Sept. 1. His address will be: Department of Physiology, College of Natural Arts and Science, Urbana, Ill.

Medical Assistants of Quincy.—The Medical Secretaries and Assistants Club of Quincy, sponsored by the Adams County Medical Society and the Swanberg Medical Foundation of Quincy, was organized April 23. Its principal purpose is to promote educational programs adapted to the work of the members, to promote a closer relationship between members and their employers, and to further the relationship of the profession with the public and the patient. Membership is open to all women who have been employed by an Adams County physician, dentist, clinic, hospital, or health department. Those similarly employed in other counties of the Quincy territory may also join. Information may be obtained from the secretary, Miss Alice Rupert, 209-224 W. C. U. Building, Quincy.

Chicago

Audiology Grants-In-Aid.—The Audiology Foundation, to encourage and support adequate training of students, is offering again this year a limited number of grants-in-aid to students entering or already engaged in any branch of audiology, including otology, audiometry, speech, acoustics and education of the deaf or hard of hearing. These grants-in-aid will pay $500 per year and will be granted on the recommendation of professional teachers in audiology centers. For further information address the Audiology Foundation, 1104 S. Wabash Ave., Chicago 5.

Subsidiary Scholarships.—Four subsidiary scholarships of $10,000 each have been awarded to the Chicago Medical School this year by the David, Josephine and Winfield Baird Foundation, Inc., of New York. Another award of like amount has been given by Mrs. Sadye Arkin, Chicago, in memory of her husband, Harry J. Arkin. A subsidiary scholarship subsidizes the school for the difference between what a student pays in tuition and what the school must expend for his four years of training.

Research Group Receives Award.—The 1950 Commercial Solvents Award in antibiotics was presented to the terramycin research team of Charles Pfizer & Co., Inc., at the annual meeting of the Society of American Bacteriologists. The award consists of a gold medal and $1,000. The Pfizer group was selected for the discovery of the antibiotic, terramycin. The Commercial Solvents Award is administered by the Society of American Bacteriologists. It is awarded to any person or group of persons working in the Western Hemisphere who have contributed outstanding work in the field of antibiotics during the year.

University Appointments.—Dr. Herbert C. Batson, Washington, D. C., became professor of biostatistics at the University of Illinois College of Medicine on May 1. Dr. Batson will be concerned with work in biometrics and design of experiments.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

He taught bacteriology and immunology at South Dakota State College from 1932 to 1940 and was associated with the bureau of laboratories, Michigan Department of Health, from 1940 to 1946.

Dr. Percival Bailey has been appointed director of the Illinois Neuropsychiatric Institute in Chicago. He will continue to serve in his joint position as distinguished professor of neurology and neurological surgery at the University of Illinois College of Medicine and as research consultant for the Illinois state mental hospitals. Dr. Bailey will also advise and assist state mental hospitals and institutions of the state department of public welfare in developing and carrying out research programs. The Illinois Neuropsychiatric Institute is a research and educational facility that is operated and maintained by the state department of public welfare. The medical staff is provided by the University of Illinois College of Medicine.

INDIANA

University Committee.—In conformity with a resolution adopted by the general assembly, Gov. Henry F. Schricker has named a five-member committee to investigate the possibility of enlarging the Indiana University School of Medicine. Named as chairman was Dr. Merrill S. Davis, Marion, president of the medical school alumni organization; Mr. Virgil M. Simmons, Fort Wayne, publisher of the Fort Wayne *Journal Gazette;* Otto P. Kretzmann, D.D., Valparaiso, president of Valparaiso University; Mr. C. F. Eveleigh, Indianapolis, executive vice president of Eli Lilly & Co., and State Senator Leo J. Stemle, Jasper, an attorney. The committee will report to the 1953 session of the general assembly.

MASSACHUSETTS

Society Election.—At the recent meeting of the Massachusetts Trudeau Society held at the Worcester County Sanatorium, Worcester, Dr. Francis P. Dawson Jr., Waltham, was re-elected president; Dr. John W. Strieder, Brookline, was re-elected vice president, and Dr. David S. Sherman, Boston, was re-elected secretary-treasurer.

Course on Epilepsy.—A course in the diagnosis and treatment of epilepsy and in electroencephalography is to be conducted at the seizure division of the Children's Medical Center, Boston, under a special grant from the Children's Bureau acting through the Massachusetts Department of Public Health. A limited number of physicians and prospective electroencephalographic technicians will be accepted. The first course begins July 1. Details may be secured from state or territorial health departments, or from Dr. William G. Lennox, 300 Longwood Ave., Boston, who will have general direction of the course.

MICHIGAN

Michigan Memorial Research Program.—As a memorial to faculty and students who served during World War II, the University of Michigan has begun a research program in the development of peace-time use of atomic energy. Two years ago the university set up its Michigan Memorial-Phoenix Project and is now canvassing the alumni for funds for research. Means to alleviate malignant forms of high blood pressure without surgery will be sought in some of the 15 new investigations launched in May as a result of alumni gifts to the project. Expenditures for research thus far total $70,000. Many proposals are in the planning stage in anticipation of the 6½ million dollars the project contemplates spending within the next 10 years through various colleges of the university.

MINNESOTA

Probation for Abortionist.—On April 6 Helen A. Heck, 809 Iglehart Ave., St. Paul, was placed on probation by Judge Gustavus Loevinger in the District Court of Ramsey County. The probation is to cover a maximum period of eight years and follows a plea of guilty on Sept. 19, 1950, by the defendant to an information charging her with the crime of abortion and a prior conviction in 1947 for a similar offense. The defendant served six months in the Ramsey County jail prior to April 6 in connection with the present case. She has no license to practice any form of healing.

NEW JERSEY

Blood-Typing Program for College Women.—As a result of a blood-typing program carried on at New Jersey College for Women, Rutgers University, New Brunswick, seniors leaving the campus this month will carry identification cards stating their blood type and Rh factor. Forty-five girls from the advanced physiology and bacteriology classes at the college blood-typed more than 300 students and faculty members during May. The project, under the direction of Hazel B. Gillespie, Ph.D., associate professor of bacteriology, and Marion A. Reid, Ph.D., assistant professor of zoology, is part of the New Jersey College for Women civil defense program.

NEW YORK

Dr. Curphey Appointed Consultant.—Dr. Theodore J. Curphey, Garden City, chairman of the council committee of public health and education of the Medical Society of the State of New York, has been appointed a special consultant in clinical pathology to the Surgeon General of the U. S. Public Health Service. His post will be with the laboratory branch of the communicable disease center, Bureau of State Services.

Postgraduate Lecture.—On June 18 Dr. John L. Pool, assistant professor of clinical surgery at Cornell University Medical College, will deliver a postgraduate lecture for the Geneva Academy of Medicine in the Belhurst Restaurant, Geneva, at 8:30 p. m. on "Trends in Thoracic Surgery of Neoplastic Diseases." This lecture has been arranged by the Medical Society of the State of New York in cooperation with the New York State Department of Health.

Wadsworth Lecture.—The second Augustus B. Wadsworth lecture was given in Albany on May 16 by Dr. Francis G. Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven, Conn., on antibiotic therapy with particular reference to chloramphenicol, aureomycin, and terramycin. The lectureship was established in 1950 by the staff of the division of laboratories and research of the New York State Department of Health and the council of the New York State Association of Public Health Laboratories. Dr. Wadsworth retired as director of the division of laboratories and research in 1945 after 31 years' continuous service.

Personals.—Dr. Temple Fay, professor of neurosurgery at the Woman's Medical College of Pennsylvania, has been appointed consultant to the Albany Hospital cerebral palsy treatment center.——Dr. Samuel W. Hamilton, Cedar Grove, N. J., addressed members of the Long Island Psychiatric Society and members of the Veterans Administration Hospital, Northport, L. I., May 15 on "The Ward Physician."——Mr. William Vogt, author of "Road to Survival" and former chief of the conservation section of the Pan-American Union, has been appointed national director of the Planned Parenthood Federation of America. He returned from Scandinavia in February on the completion of a population study made under combined Guggenheim and Fulbright fellowships.

New York City

Memorial to Doctor Bohrer.—A fully equipped and modern operating room has been installed in Knickerbocker Hospital as a memorial to the late Dr. John V. Bohrer, who was associated with the hospital for 15 years and was chief of the surgical service for six years prior to his death. Funds for the equipment of the new operating room were donated by physicians and surgeons now on the hospital's staff and by friends and associates.

Dr. Dubos Wins Trudeau Medal.—Rene J. Dubos, Ph.D., of New York, a member of the Rockefeller Institute for Medical Research, department of pathology and bacteriology, has received the Trudeau Medal of the National Tuberculosis Association. The award for "the most meritorious contribution on the cause, prevention, or treatment of tuberculosis" was presented by Dr. Esmond R. Long, director of medical research, in behalf of Dr. Florence R. Sabin, Denver, formerly with the Rockefeller Institute, who was chairman of the award committee. In the citation attention was called to Dr. Dubos' work in devising a method of culturing tubercle bacilli that promotes their growth throughout the medium, contrary to their habit of clumping together near the surface, and also speeds the growth of the germs. The great advantage of the technique, according to the citation, is to "open the long road to the study of the chemical nature of virulence in tubercle bacilli and broaden the foundation for the study of immunology of tuberculosis." A native of France, Dr. Dubos in 1927 became a fellow of the Rockefeller Institute. He is a member of the committee of medical research of the American Trudeau Society and vice president of the Society of American Bacteriologists.

Yeshiva University Medical Education Council.—An 11-man council of medical education has been formed to guide the development of the projected medical school at Yeshiva University. Dr. Harry M. Zimmerman, professor of pathology at Columbia University College of Physicians and Surgeons, has been elected chairman. Dr. Donald G. Anderson, Chicago, Secretary, American Medical Association's Council on Medical Education and Hospitals, and Dr. John B. Pastore, assistant professor of clinical obstetrics and gynecology at Cornell University Medical College, will serve as consultants. The projected medical center will contain schools of medicine, dentistry, nursing, public health, and postgraduate divisions. Members of the council include: Dr. Bernard J. Alpers, Philadelphia, professor of neurology at Jefferson Medical College; Dr. Leo Davidoff, clinical professor of neurosurgery at New York University College of Medicine; Dayton J. Edwards, Ph.D., professor emeritus of physiology at Cornell University Medical College; Dr. Harry H. Gordon, professor of pediatrics at the University of Colorado School of Medicine, Denver; Dr. Horace L. Hodes, clinical professor of pediatrics, Columbia University; Dr. Marcus Kogel, city commissioner of hospitals; Dr. Louis H. Nahum, professor of physiology at the Yale University School of Medicine, New Haven, Conn.; Dr. Isadore Snapper, director of medical education at Mt. Sinai Hospital; Dr. Abraham White, vice-president and director of research, Chemical Specialties Company, Inc.; Dr. Maxwell M. Wintrobe, professor of internal medicine at the University of Utah Medical School, Salt Lake City, and Dr. Harry M. Zimmerman, professor of pathology at Columbia University. In 1950 New York State's board of regents amended the charter of Yeshiva University, founded in 1897 as a theological seminary, empowering it to open a medical and dental school.

SOUTH DAKOTA

Dean Slaughter Named Consultant.—Dr. Donald H. Slaughter, dean of the University of South Dakota School of Medical Sciences, Vermillion, has been appointed consultant to the postgraduate Army Medical School in Washington, D. C. Dr. Slaughter lectured to students at the school in May and June on "The Philosophy of Medical History."

TENNESSEE

Visiting Professors.—Five visiting professors will join the faculty of the University of Tennessee Medical Units for the summer quarter beginning July 9. Frederic R. Steggerda, Ph.D., who served as an instructor in the division of physiology from 1929 to 1933, will return as a visiting professor of physiology. Dr. Steggerda is now a professor at the University of Illinois, Urbana. Four other professors joining the staff of the division of anatomy are: James H. Leathem, Ph.D., New Brunswick, N. J.; G. Gordon Robertson, Ph.D., Dallas, Texas; Robert L. Bacon, Ph.D., and Dr. Donald L. Stilwell, San Francisco.

TEXAS

Guest Lecturers Organization.—The department of radiology of the University of Texas Medical Branch, Galveston, under the direction of Dr. Joe C. Rude, has developed a guest lecturers organization. Dr. Walter J. Stork, Houston, is chairman; Dr. Carroll F. Crain, Alice, is vice chairman, and Dr. Rude is acting as temporary secretary. The organization includes 37 radiologists from Texas, Oklahoma, and Louisiana. The object of the group is to promote interest of Southwest physicians in radiology and to support the highest possible standards for radiological work in the Southwest.

UTAH

Personals.—At a recent meeting of the American Board of Anesthesiology Dr. Scott M. Smith of Salt Lake City was elected a director of the board.——Dr. George M. Fister, Ogden, was among the 17 distinguished University of Chicago alumni to be awarded a citation of merit at the alumni assembly in Chicago June 9.

State Board of Health.—Dr. James Z. Davis, Salt Lake City health commissioner, has succeeded Dr. Thomas J. Howells as chairman of the state board of health. Dr. Davis has served on the board for the past two years. The retiring chairman has been a member of the board for 18 years and has also served twice as acting state health commissioner.

WEST VIRGINIA

Lay Diabetes Society.—The first meeting of the new Kanawha Diabetic Lay Society was held at the YWCA in Charleston the middle of March. Throughout the state similar lay societies are being formed that will ultimately amalgamate with the West Virginia Diabetes Association.

Grants for Heart Research.—A grant of $3,000 for research in heart disease has been awarded the school of medicine at West Virginia University, Morgantown, by the board of directors of the West Virginia Heart Association. The board has also granted a fellowship award of $2,500 to the American Heart Association with the stipulation that citizens of West Virginia be given preference in using the proceeds of the award. It has been announced that a total of more than $25,000 was collected in the state during the 1951 Heart Fund Drive, an increase of $6,000 over 1950.

Obstetricians and Gynecologists Organize.—Obstetricians and gynecologists in the Charleston area have organized under the name of "The Obstetrical and Gynecological Society of Charleston, West Virginia." Dr. Leo M. Seltzer is president, Dr. George L. Grubb, vice president, and Dr. Frederick H. Dobbs, secretary. Meetings will be held in the library of the West Virginia State Medical Association on the second Thursday in each month from October through May. The objects of the society are to create better understanding between doctors practicing obstetrics and gynecology, to disseminate information concerning new and modern concepts relative to this field, and to enable members to write and discuss papers of interest to the society.

WISCONSIN

Bardeen Memorial Lectureship.—Dr. Charles Huggins, professor of surgery, University of Chicago Medical School, delivered the Bardeen Memorial Lectureship of Phi Chi at the University of Wisconsin Medical School May 10.

Surgeons Meeting.—The Wisconsin section of the U. S. chapter of the International College of Surgeons met June 2 in Marshfield. Featured was an operative surgical clinic. Six papers were presented in the afternoon, and Dr. Arnold S. Jackson, Madison, reported on the meeting of the international college in Florence, Italy. At the evening session Dr. Durand Smith, Chicago, spoke on radiation injury to the bowel, and Dr. William M. McMillan, Chicago, on pitfalls and safeguards in surgery of the colon.

HAWAII

Medical Association Election.—At the recent annual meeting of the Hawaii Territorial Medical Association Dr. Harry L. Arnold Jr., Honolulu, was installed as president. Others elected include Dr. Ransom J. McArthur, Wailuku, president-elect; Dr. Irvin L. Tilden, Honolulu, secretary, and Dr. Edwin K. Chung-Hoon, Honolulu, treasurer. The secretary and treasurer are elected for three years. Dr. Tilden and Dr. Chung-Hoon are now serving the last year of their terms.

GENERAL

New Executive Director for National Foundation.—Mr. Raymond H. Barrows, San Francisco, vice president and manager of the Pacific Area of the American Red Cross, became executive director of the National Foundation for Infantile Paralysis June 1. Mr. Barrows succeeds Mr. Joe W. Savage, executive director since January, 1946. Mr. Barrows joined the Red Cross as assistant director of disaster relief in the Midwestern Area Office at St. Louis in July, 1941, and became director of that service before he was transferred to the Pacific Area office.

Alumni to Finance Medical School History.—A project to bring up to date the history of the Long Island College of Medicine has been undertaken by the alumni association of the college. To finance the project the association is asking for a prepublication sale of copies at $10 each. This second volume is to cover the years 1900 through 1950 and will contain a complete biographical sketch of each graduate. It is to contain about 325 pages and will be completed in 12 to 18 months. Checks payable to the treasurer of the alumni association of the Long Island College of Medicine should be sent to 350 Henry St., Brooklyn 2.

Southern Anesthesiologists Meet.—The Southern Society of Anesthesiologists at their annual meeting in Louisville in April chose Dr. Ralph M. S. Barrett, St. Louis, president-elect; Dr. John Adriani, New Orleans, vice president; Dr. David A. Davis, Augusta, Ga., secretary-treasurer. Dr. Donald Stubbs, Washington, D. C., is the new president. Among the speakers on the program were: Dr. David M. Little Jr., New Haven, Conn.; Dr. Charles R. Stephen, Durham, N. C., and Drs. Charles R. Allen and Harvey C. Slocum of Galveston, Texas. Dr. Fred Williams, Louisville, president of the society, presided at the business session.

Report on Research on Hypertension.—The American Foundation for High Blood Pressure has recently published "Research Progress Report," which lists 19 research projects in the field of hypertension and arteriosclerosis that were supported by the foundation in 1949 and 1950 at a total outlay of $112,522. The American Foundation for High Blood Pressure on Jan. 1, 1950, joined with the American Heart Association and then became its Council for High Blood Pressure Research. In this new affiliation the council continues to operate as did the foundation. The administrative office address of the council is 705 Marion Building, Cleveland 13. Dr. Alva Bradley is president.

Award in Orthopedic Surgery.—A prize of $1,000 donated by the Kappa Delta sorority may be awarded annually by the American Academy of Orthopaedic Surgeons for the best research related to orthopedic surgery and performed in the United States. This research must be presented to the committee on scientific investigation of the American Academy of Orthopaedic Surgeons before Nov. 1. Researchers interested in competing for this prize are requested to secure further information from Dr. Austin T. Moore, Gervais and Pickens Sts., Columbia 5, S. C., chairman of the award committee for 1951.

American Neurological Association.—The American Neurological Association will hold its annual meeting June 18-20 at the Hotel Claridge, Atlantic City, N. J., under the presidency of Dr. Wilder G. Penfield, Montreal, Canada. The program will open with a symposium in which the speakers will be:

Gerhardt Von Bonin, Chicago, Phylogenesis of the Human Cerebral Cortex.
Horace W. Magoun, Los Angeles, An Activating System in the Brain Stem.
Herbert H. Jasper, Mr. Cosimo Ajmone Marsan, Julius Stoll Jr., Montreal, Cortifugal Projections to the Brain Stem.
Stanley Cobb, Boston, On the Nature and Locus of Mind.
Wilder G. Penfield, Montreal, Human Memory Mechanisms.

Tele-Clinics.—Wyeth, Inc., Philadelphia, has undertaken a motion picture educational program to bring to medical personnel who are unable to attend distant professional meetings abstracts of scientific papers presented at such meetings and views of highlights of these assemblies. Tele-Clinic No. 2 was a sound motion picture report of the annual meeting of the American Academy of General Practice in San Francisco in March. The preview presentation was held at the Palmer House, Chicago, May 26 on invitation of the American Academy of General Practice. This production is a 35-minute, 16 mm. black-and-white sound film of which 55 prints will be made available to medical societies, hospitals, nurses groups, and other medical organizations. Tele-Clinic No. 1, released last November, featured the proceedings of the fourth general assembly of the World Medical Association held in New York and has been seen by more than 30,000 doctors throughout the United States.

National Medical Council Formed.—This council was formed in New Haven, Conn., April 20 to work with the Yale Center of Alcoholic Studies on rehabilitation of the problem drinkers in industry, estimated to exceed 2 million. Dr. John J. Wittmer,[*] assistant vice president of the Consolidated Edison Company of New York, Inc., was named chairman of the council. The impact of alcoholism on manpower during national mobilization was the factor prompting the formation of the group. Selden D. Bacon, director of the Yale center, said the council had been approved by the medical heads of leading business and industrial concerns including E. I. du Pont de Nemours & Co., Esso Standard Oil Company, General Motors Corporation, R. H. Macy, Metropolitan Life Insurance Company, and the National Broadcasting Company, Inc.

Plastic Surgery Awards.—The foundation of the American Society of Plastic and Reconstructive Surgery offers junior and senior awards for original contributions in plastic surgery. The junior award is two scholarships in plastic surgery of six and three months respectively. The contest is open to plastic surgeons who have been in the specialty no longer than five years. The senior award will be given for the best essay on "Mass Treatment of Burns in Atomic Warfare." Winning essays will appear on the program of the forthcoming annual meeting of the society to be held at Colorado Springs, Colo., Oct. 31-Nov. 2. Entries must be received by the chairman not later than Aug. 15. For information address the Award Committee, % Jacques W. Maliniac, M.D., 11 East 68th St., New York 21.

Research in Blood Diseases.—The Hematology Research Foundation invites applications for the Ruth Reader Fellowship and the Robert L. Goldblatt Fellowship for research in blood diseases in the academic year 1951-1952. The stipend for each fellowship is $1,500 per year with option to renew. This offer is made to workers of any race or creed in the United States. Applications must be submitted no later than July 15 to Hematology Research Foundation, 72 E. 11th St., Chicago 5. Nine copies of the application are requested. Forms are available on request. Awards will be announced by the medical advisory council in July or August this year. The council will choose the applicants on the basis of merit and will also choose the institution in Chicago in which the work is to be done.

World Health Organization Fellowships.—More than 250 fellowships for advanced study will be awarded this year by the World Health Organization to medical and allied personnel throughout the world. Technical and teaching personnel from WHO member states with at least two years of experience in the field in which the fellowship is sought are eligible for the awards. Applications are made to WHO through the applicant's government. The World Health Organization has already awarded about 800 fellowships in fields including public health administration, communicable diseases, nursing, maternal and child health, internal medicine and surgery. The Pan American Sanitary Bureau, regional office of WHO, awards from its own budget additional fellowships for public health trainees in the Americas. During the past year the bureau granted some 35 fellowships for studies extending from several weeks to a full academic year. This is in addition to the financing by the bureau during 1950 of shorter-term training courses for more than 80 men and women in serological laboratories and a public health nursing workshop.

School of Tuberculosis.—The 37th session of the Trudeau School of Tuberculosis was held at Saranac Lake, N. Y., April 30-May 25. This school has been supported since 1939 by the Lillia Babbitt Hyde Foundation and is intended for physicians who wish to prepare themselves for sanatorium or public health service or those who desire a postgraduate course in diseases of the lungs. The program presents the essentials of history, etiology, epidemiology, pathology, diagnosis, prognosis, and treatment. In addition to daily discussions, classes, and clinics, there were evening lectures by Dr. Honore Smith of Oxford, England, on the "Treatment of Tuberculosis Meningitis"; by Dr. Herman E. Hilleboe, New York State Health Commissioner, on "World Problems in Tuberculosis"; by Dr. Maurice Costello, clinical professor of dermatology and syphilology, New York University College of Medicine, on "Tuberculosis of the Skin"; by Dr. Averill A. Liebow, associate professor of pathology, Yale University College of Medicine, on "Aspects of the Pulmonary Circulation in Disease," and by Dr. Frank R. Ferlaino, medical director, General Motors Corporation, New York, on "Tuberculosis as it Occurs in Industrial Workers."

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[*] Dr. Wittmer died May 19.

Predoctoral Fellowships.—The National Foundation for Infantile Paralysis has announced a new type of short-term predoctoral fellowships for undergraduate medical students interested in research in medicine and the related biological and physical sciences. The fellowships cover a minimum of two months' experience in research under the direction of a competent investigator in the laboratories of approved medical schools or research institutes in the United States. Under the plan the dean of each four-year medical school has the privilege of nominating one medical student to receive a fellowship. The National Foundation for Infantile Paralysis will provide a stipend of $400 for each student who qualifies for the summer laboratory study. The new fellowships are administered by the division of professional education with the assistance of a professional committee headed by Dr. Thomas B. Turner, professor of bacteriology at the School of Hygiene and Public Health of Johns Hopkins University School of Medicine, Baltimore. The purpose of the new short-term fellowships is to enable medical students to test their desires and determine their aptitudes to participate in research in medicine and related biological sciences at an early stage in their professional careers.

Child Mortality Rates.—Conquest of disease has reduced the mortality at ages 1 to 14 by three fourths since 1930. This is based on the experience among children insured with the Metropolitan Life Insurance Company. The death rate among boys of the insured group dropped from 275.8 per 100,000 in 1930 to 74.7 in 1950 and among the girls from 228.4 per 100,000 to 53.9. At the preschool ages the improvement over the two decades was about four fifths, and the 1950 preschool death rate from all causes combined was lower than the rate from pneumonia alone in 1930. The mortality from the principal communicable diseases of childhood, measles, scarlet fever, whooping cough and diphtheria, fell more than 95 per cent, and the downward trend of the death rate from diarrhea and enteritis was almost as rapid. Reductions of not less than 75 per cent at any of the age periods were recorded for pneumonia, tuberculosis and rheumatic fever. With these shifts in the mortality picture, accidents now constitute the foremost cause of death at every age group for both boys and girls and at 1 to 4 years account for about one death in every three among boys and nearly one in five among girls. A pronounced rise in the recorded mortality from cancer among children has made it now a leading cause of death.

Society Elections.—At the annual meeting of the New Orleans Graduate Medical Assembly March 5-8 Dr. Edgar Hull, New Orleans, was installed as president. Other officers elected for this year include: Dr. Charles B. Odom, New Orleans, president-elect; Dr. Woodard D. Beacham, New Orleans, secretary, and Dr. Robert F. Sharp, New Orleans, treasurer. The 1952 meeting will be held March 10-13, with headquarters at the municipal auditorium.——New officers of the American Psychiatric Association elected during the 107th annual meeting of the association in Cincinnati May 7-11 include: Dr. Leo H. Bartemeier, Detroit, president; Dr. D. Ewen Cameron, Montreal, Canada, president-elect; Dr. R. Finley Gayle Jr., Richmond, Va., secretary, and Dr. Howard W. Potter, Brooklyn, treasurer. ——The American Academy of General Practice at its March meeting in San Francisco installed Dr. Joseph P. Sanders, Shreveport, La., as president and chose Dr. R. B. Robins, Camden, Ark., as president-elect; Dr. Fred A. Humphrey, Fort Collins, Colo., vice president, and Dr. Jack S. DeTar, Milan, Mich., speaker of the house of delegates. The 1952 scientific assembly will be held in Atlantic City, N. J., March 24-27.—— At the annual meeting of the American Institute of Nutrition in Cleveland April 29-May 3 the following officers were elected: Clive M. McCay, Ph.D., New York, president; Paul L. Day, Ph.D., Little Rock, Ark., vice president, and James M. Orten, Ph.D., Detroit, secretary.——The American Otological Society at its meeting at the Hotel Claridge, Atlantic City, N. J., May 11-12 elected the following officers: Dr. Gordon D. Hoople, Syracuse, N. Y., president; Dr. Albert C. Furstenberg, Ann Arbor, Mich., vice president, and Dr. John R. Lindsay, Chicago, secretary-treasurer.——The American Society for Pharmacology and Experimental Therapeutics at its annual meeting in Cleveland April 29-May 3 elected the following officers: Dr. McKeen Cattell, New York, president; Dr. K. K. Chen, Indianapolis, president-elect; Dr. Carl C. Pfeiffer, Chicago, secretary, and Dr. Robert P. Walton, Charleston, S. C., treasurer.

FOREIGN

Anti-Tuberculosis Center Opened in Istanbul.—A new building constructed by the Turkish government to house the World Health Organization Anti-Tuberculosis Center was opened last winter in Istanbul in the presence of the Turkish minister of health, the governor of Istanbul, and representatives of the diplomatic corps. The center had been operating in temporary premises since its foundation last June. The center's primary function is to train medical and health workers in modern anti-tuberculosis methods and to create a unified organization against the disease that would serve as a model for similar services elsewhere. The WHO staff in Istanbul, consisting of a French tuberculosis specialist, an English x-ray technician, and a French nurse, has in eight months given advanced instruction to nearly 300 Turkish doctors and nurses. The new building, which contains five floors and cost $130,000, includes sections for radiography, tuberculin-testing, and BCG-vaccination.

Penicillin Factory in India.—The government of India has announced its decision to accept United Nations assistance in setting up a penicillin factory at an estimated cost of 20 million rupees (4 million dollars). The World Health Organization, as requested by the government of India, will make available technical assistance and training facilities for Indian personnel to an extent of $350,000. The United Nations International Children's Emergency Fund will pay for imported production equipment costing $850,000. The government of India will retain full control over the erection, operation, and maintenance of the factory and its staff and will make available to Indian women and children free supplies of penicillin to the total value of $850,000. It is estimated that a minimum production of 400,000 mega units per month will be reached at the end of two years, rising ultimately to 700,000 mega units.

DEATHS IN OTHER COUNTRIES

Maj. Gen. Sir Percy Tomlinson, who was the medical officer responsible for building up the medical organization of the Middle East Command during World War II, died in Hove, England, March 6, aged 66. He became honorary physician to the King and was elected a fellow of the Royal College of Physicians.——**Professor Martin Mayer** passed away suddenly on Feb. 17 at Caracas, Venezuela, aged 76. For many years he was head of the bacteriological section of the Institut für Schiffs- und Tropenkrankheiten, Hamburg, until he was forced to leave Germany and found refuge at the Universidad Central in Caracas.

CORRECTION

The Heredity of Epilepsy.—In the article by Dr. William G. Lennox on the heredity of epilepsy in THE JOURNAL, June 9, 1951, page 536, in line 12, left-hand column, 7.6 per cent should read 6.4.

MEETINGS

American Electroencephalographic Society, Hotel Claridge, Atlantic City, June 16-17. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Hearing Society, Palmer House, Chicago, June 29. Mrs. Frances E. Lee, 817 Fourteenth St. N.W., Washington 5, D. C., Secretary.

American Neurological Association, Atlantic City, June 18-20. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Orthopedic Association, *The Greenbrier, White Sulphur* Springs, W. Va., June 20-23. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

Great Falls Medical-Surgical Conference, Great Falls, Montana, June 25-26. Dr. William E. Sullens, Box 1066, Great Falls, Chairman.

Idaho State Medical Association, Sun Valley, June 17-20. Dr. Robert S. McKean, 305 Sun Building, Boise, Secretary.

Maine Medical Association, Poland Spring House, Poland Spring, June 17-19. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Medical Library Association, Denver, June 28-30. Miss Caroline Riechers, Rush Medical College Library, 1758 W. Harrison St., Chicago 12, Secretary.

Post Graduate Medical Assembly of South Texas, Shamrock Hotel, Houston, Texas, July 23-25. Mrs. W. H. Dahme, 229 Medical Arts Bldg., Houston, Executive Secretary.

Society of Biological Psychiatry, Claridge Hotel, Atlantic City, June 17. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles 17, Secretary.

West Virginia State Medical Association, The Greenbrier, *White Sulphur* Springs, July 19-21. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Executive Secretary.

INTERNATIONAL

European Congress on Rheumatism, Barcelona, Spain, Sept. 24-27. Dr. Gunnar Edströn, Lund, *Sweden, Secretary.*

General Practitioners Study Club International, Rome, Italy, Sept. 12-15. Dr. John O'Connell, 10300 Lackland Road, St. Louis 14, Mo., *U. S. A., President.*

International Anesthesia Research Society, London, England, Sept. 3-7. Mr. R. W. Cope, University College Hospital, London W.C.1, England.

International Association of Allergists, Zurich, Switzerland, Sept. 23-29. Prof. A. S. Grumbach, Hygiene Institut der Universitaet Zurich, Gloriastr. 32, Zurich, Switzerland.

International Congress of Anesthesiology, Nursing School of the Salpiettre, 47 Boul de l'Hospital, Paris, France, Sept 20-22. 12 rue de Seine, Paris 6^e, France, Secretariat.

International Congress of Clinical Pathology, London, England, July 16-20. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W.9, England, Secretary.

International Congress of Gynecology, Maison de la Chimie, Centre Marcellin, Paris, France, June 23-29. Dr. Maurice Fabre, 1, rue Jules-Lefebvre, Paris 9, General Secretary.

International Congress on Industrial Medicine, Instituto Superior Técnico, Lisbon, Portugal, Sept. 9-15. Dr. Luis Guerreiro, Instituto Nacional *do Trabalho e Previdência*, Praça *do Comercio, Lisbon,* Secretary General.

International Congress on Mental Health, Mexico City, Mexico, Dec. 11-19.

International Congress of Military Medicine and Pharmacy, *Paris,* France, June 17-23. Physician General Dutrey, 8, bis, rue de Recollets, Paris 10, Secretary General.

International Gerontological Congress, Hotel Jefferson, St. Louis, Mo., U. S. A., Sept. 9-14. Dr. John E. Kirk, 5600 Arsenal Street, St. Louis 9, Mo., Chairman, Program Committee.

International Hospital Congress, Brussels, Belgium, July 15-21. Capt. J. E. Stone, 10 Old Jewry, London E.C., England, Secretary.

International Poliomyelitis Congress, Copenhagen, *Denmark, Sept.* 3-7. Prof. Dr. Niels Bohr, Statens Seruminstitut, 80 Amager Blvd., Copenhagen S., Denmark, President.

International Society of Surgery, *Paris, France, Sept.* 24-29. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, Secretary General.

International Society for the Welfare of Cripples, Fifth World Congress, Stockholm, *Sweden, Sept.* 9-14. Mr. Donald V. Wilson, 54 E. 64th St., New York 21, N. Y., U. S. A., Executive Director.

Pan Pacific Surgical Association Congress, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, *Suite* 7, Young Bldg., Honolulu, Hawaii, President.

Students' International Clinical Congress, Leyden, Utrecht, Groningen and Amsterdam, Holland, July 10-28. N. A. M. Bergstein, Oude Gracht 143 bis, Utrecht, Holland, Secretary General.

World Confederation for Physicial Therapy, Copenhagen, Denmark, Sept. 7-8.

World Medical Association, *Stockholm, Sweden, Sept. 15-21. Dr. Louis* H. Bauer, 2 E. 103d-St., New York 29, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. June 18-20, Sept. 5-7 (Part I only). Applications must be filed at least thirty days prior to an examination. Ex. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

INTERNATIONAL COLLEGE OF SURGEONS

Examinations for Certified Fellowship in the United States Chapter in General and Orthopedic Surgery, Chicago, Aug. 3-4. Sec., Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago 10.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application was Jan. 20. *Oral.* Memphis, Oct. 14-17. *Written.* July 18, 1952, Various locations. Final date for filing applications is Jan. 18, 1952. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Internal Medicine: *Written.* Various centers, Oct. 15. *Final date for filing applications* was May 1. *Oral.* The schedule of oral examinations for 1951 has been arranged on a regional basis as follows: June, includes candidates from Beirut, Canada, Canal Zone, Connecticut, Delaware, District of Columbia, Maryland, New Jersey, Ohio, Pennsylvania, Puerto Rico, Rhode Island, Virginia and West Virginia. New York, date to be announced, covering Maine, Massachusetts, New Hampshire, New York and Vermont. San Francisco, date to be announced, covering Arizona, California, Colorado, Idaho, Montana, New Mexico, Oregon, Utah and Washington.

Only candidates who have not taken an oral examination can be admitted under the schedule arranged thus far.

Dates of closing dates for the filing of applications for examinations in New York and San Francisco to be announced.

Oral examinations in the subspecialties will be held at the same time and place and on the same distribution.

Exec. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3.

American Board of Neurological Surgery: *Oral.* Chicago, Oct. 25-26. *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 examination is Jan. 1, 1952. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and Gynecology: *Written.* Feb. 1, 1952. Final date for filing applications is Nov 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

American Board of Ophthalmology: *Written.* Twenty-five centers, Feb. 4-5, 1952. *Oral.* Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Final date for filing applications for the 1952 Part II examinations is Aug. 15, 1951. Sec., Dr. Harry A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 9-12. *Sec.,* Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pediatrics: *Oral.* Detroit, June 8-10. Buffalo, Oct. 26-28. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Preventive Medicine: *Written.* San Francisco, October 28. *Oral.* San Francisco, October 29. Sec., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore 5.

American Board of Radiology: *Oral.* Washington, D. C., Sept. 17-22. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

Board of Throacic Surgery: *Written.* Various parts of the country. Sept. 14, 1951. Final date for filing applications is July 15. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

American Board of Urology: Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

DEATHS

Leslie, Frank Elliott ⊕ St. Petersburg, Fla.; born in Woburn, Mass., July 21, 1873; Medical School of Maine, Portland, 1901; commissioned a first lieutenant in the medical corps of the U. S. Army in July, 1917; promoted to captain in October of that year and to major in February, 1918; in September, 1919, was commissioned a surgeon in the U. S. Public Health Service and made senior surgeon in February, 1920; at the time of his retirement in 1943 was manager of the Veterans Administration Memorial Hospital at Mendota, Wis., a position he had held since 1939; specialist certified by the American Board of Psychiatry and Neurology; member of the Maine Medical Association, American Psychiatric Association, National Committee for Mental Hygiene, and the Association of Military Surgeons of the United States; from 1905 to 1917 superintendent of Glenellis Sanitarium in Andover, Maine, where in 1911 he was president of the Oxford County Medical Society; died in the Veterans Administration Center, Bay Pines, March 27, aged 77, of portal cirrhosis and primary carcinoma of the liver.

McClure, Roy Donaldson ⊕ Detroit; born in Bellbrook, Ohio, Jan. 17, 1882; Johns Hopkins University School of Medicine, Baltimore, 1908; assistant in surgery from 1912 to 1914 and instructor in surgery from 1914 to 1916 at his alma mater; specialist certified by the American Board of Surgery; founded and was the first president of the Central Surgical Association; past president of the Detroit Academy of Surgery; fellow of the American Surgical Association, Southern Surgical Association, and the American College of Surgeons, of which he had been a governor; served in the army during World War I as head of an evacuation hospital in France and during World War II as a member of the National Research Council and chairman of the Michigan Medical Advisory Board; creator and first chief of the department of surgery, Henry Ford Hospital; consulting surgeon, Charles Godwin Jennings Hospital; died March 31, aged 69, of arteriosclerotic heart disease.

Crossen, Harry Sturgeon ⊕ St. Louis; born in Centerville, Iowa, Feb. 2, 1869; Washington University School of Medicine, St. Louis, 1892; since 1935 professor emeritus of clinical obstetrics and gynecology at his alma mater, where he was instructor in gynecology from 1901 to 1921, when he became professor of clinical gynecology; member of the American Gynecological Society and the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; served in France during World War I; affiliated with Barnes, St. Luke's and St. Louis Maternity hospitals; superintendent and surgeon in charge, St. Louis Female Hospital from 1895 to 1899; author of "Diagnosis and Treatment of Diseases of Women," co-author of "Diseases of Women," "Gynecology for Nurses," "Synopsis of Gynecology," "Operative Gynecology," and "Foreign Bodies Left in the Abdomen"; died in Clayton March 10, aged 82, of cerebral hemorrhage.

Richards, Theodore Wright ⊕ medical director, captain, U. S. Navy, retired, Savannah, Ga.; born in Portsmouth, Va., Oct. 8, 1870; Columbian University Medical Department, Washington, D. C., 1893; commissioned an assistant surgeon in the medical department of the Navy Nov. 12, 1894; veteran of the Spanish-American War; served at various naval stations aboard the fleet; in April, 1910, senior medical member of the retirement board; in 1915-1916 served as the medical officer aboard the *USS Maine*; prior to the onset of World War I was liaison officer with the American Red Cross at the Bureau of Medicine and Surgery and officer in charge of personnel for Naval Base Hospital No. 1 in France; during World War I was a special medical advisor to the commanding general of the armed forces for the medical department of the Navy; retired from active duty Nov. 1, 1934, for physical disability; died March 20, aged 80, of heart disease.

Parham, John Calhoun ⊕ medical director, captain, U. S. Navy, retired, San Diego, Calif.; born Oct. 4, 1885; Medical College of Alabama, Mobile, 1906; specialist certified by the American Board of Internal Medicine; entered the medical corps of the U. S. Navy as a lieutenant (jg) on July 7, 1911; served as medical officer aboard the *USS Birmingham* and was also the senior medical officer of the U. S. Naval Base No. 27 at Plymouth, England, during World War I; on the staff of the commander, base force, Pacific, 1936-1937, followed by a two-year tour of duty at the U. S. Naval Hospital, San Diego, Calif.; in 1939-1940 executive officer at the Naval Hospital in Pearl Harbor; retired from active duty Dec. 1, 1940, because of physical disability; died in the U. S. Naval Hospital March 26, aged 65, of cerebral thrombosis and hypertensive cardiovascular disease.

Beckman, William Woods, New York; born in Altoona, Pa., Aug. 22, 1910; Harvard Medical School, Boston, 1935; assistant dean and assistant professor of medicine at the New York University College of Medicine, a unit of the New York University-Bellevue Medical Center; at one time an instructor and associate in medicine at his alma mater; research fellow of the American College of Physicians; member of the American Medical Association; served as intern, resident, assistant in medicine, and assistant physician at Massachusetts General Hospital in Boston; formerly associated with the Rockefeller Institute for Medical Research and the Rockefeller Institute Hospital; participated in the report of the Joint Committee on the Study of Social and Environmental Factors in Medicine published by the Commonwealth Fund; died April 12, aged 40.

Davis, George Edwin ⊕ New York; born in Harrodsburg, Ky., Feb. 18, 1866; Bellevue Hospital Medical College, New York, 1889; specialist certified by the American Board of Otolaryngology; formerly emeritus professor of otology at the New York Polyclinic Medical School and Hospital; instructor of otology at the New Post-Graduate Medical School and Hospital from 1908 to 1914; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; chairman of the medical research board of the American Expeditionary Forces during World War I; later retained a captaincy in the Officers Reserve Corps; consulting aural surgeon, Manhattan State Hospital, New York, Central Islip State Hospital, Central Islip, and United Hospital, Port Chester; died March 24, aged 85, of coronary thrombosis.

Anderson, John Birckhead ⊕ Baraboo, Wis.; born in St. Louis in 1869; Washington University School of Medicine, St. Louis, 1892; honorary member of the Washington State Medical Association; for many years city health officer of Spokane, Wash., and later commissioner of health of the state of Washington; during World War I served on the Council of Defense and was a member of the food conservation committee; in 1921 commissioned a senior surgeon in the U. S. Public Health Service reserve; served on the staffs of various Veterans Administration hospitals; at one time chief neuropsychiatrist at the Hines (Ill.) Hospital, where he organized and was chief of the diagnostic center until his retirement in 1938; died March 22, aged 82, of Parkinson's disease and uremia.

Hunt, Robert Walter ⊕ New York; born in Santa Barbara, Calif., July 12, 1904; Stanford University School of Medicine, San Francisco, 1933; assistant clinical professor of urology at New York Medical College, Flower and Fifth Avenue Hospitals; certified by the National Board of Medical Examiners; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; served during World War II; assistant attending surgeon and from 1935 to 1938 resident in urology at the James Buchanan Brady Foundation of the New York Hospital; director of urology at St. Clare's Hospital, where he died March 31, aged 46, of intracranial hemorrhage.

⊕ Indicates Fellow of the American Medical Association.

Hoffman, Charles Wilbur ⊕ Baltimore; born in Philadelphia, Dec. 19, 1876; Jefferson Medical College of Philadelphia, 1903; formerly on the faculty of Johns Hopkins University School of Medicine and the University of Maryland School of Medicine; served during World War I; as lieutenant colonel in the medical reserve corps, served as surgeon for the Maryland state guard from 1944 until 1948; at one time associated with the U. S. Public Health Service, and was surgical consultant for several local public health hospitals until 1932; affiliated with the Church Home and Infirmary, St. Joseph's, St. Agnes, Mercy, West Baltimore General, and Franklin Square hospitals; died March 15, aged 74, of carcinoma of the bladder.

Sager, Edward Miller ⊕ colonel, MC., U. S. Air Force, retired, Fort Worth, Texas; born in Yeagertown, Pa., Jan. 31, 1901; Medical College of Virginia, Richmond, 1930; entered the Army in 1930; in 1934 was transferred to the Air Force as a flight surgeon; during World War II served as post surgeon at Barksdale and Maxwell fields and as flight surgeon with the 12th Air Force in Italy; won the Bronze Star medal and three battle stars; surgeon with the Eighth Air Force at Carswell Air Force Base; retired from the Air Force Sept. 30, 1949; assistant city health director; died at Carswell Air Base hospital March 19, aged 50, of acute coronary occlusion.

Moore, John Thomas ⊕ Houston, Texas; University of Texas School of Medicine, Galveston, 1896; professor of clinical surgery at Baylor University College of Medicine; member of the Southern Surgical Association; fellow of the American College of Surgeons; past president of the Harris County Medical Society; specialist certified by the American Board of Surgery; served during World War I; consulting surgeon, Hermann and Methodist hospitals; affiliated with Jefferson Davis Hospital; received the honorary degree of doctor of science from Texas Christian University, Fort Worth; died March 18, aged 86, of coronary thrombosis.

Bowen, John Thomas ⊕ Clearwater, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1910; served during World War I; on the staff of the Morton Plant Hospital, where he died March 16, aged 75, of coronary thrombosis and arteriosclerosis.

Bowers, George Francis Haskell ⊕ Newton, Mass.; Harvard Medical School, Boston, 1911; member of the New England Pediatric Society; died in Newton-Wellesley Hospital, Newton Lower Falls, April 1, aged 67.

Bradt, Elizabeth Gilchrist, Castile, N. Y.; Boston University School of Medicine, 1915; died in Wyoming County Community Hospital, Warsaw, April 4, aged 61, of multiple sclerosis.

Burch, Albert J., Alpine, Calif.; Fort Worth (Texas) School of Medicine, Medical Department of Fort Worth University, 1899; died in La Mesa (Calif.) Hospital April 3, aged 77, of coronary occlusion.

Clayton, John M., West Louisville, Ky.; University of Louisville Medical Department, 1888; member of the American Medical Association; died in Our Lady of Mercy Hospital, Owensboro, April 3, aged 85.

Collins, William David, Hudson, N. Y.; Albany Medical College, 1907; member of the American Medical Association; served as commissioner of health; affiliated with Columbia Memorial Hospital, where he died April 10, aged 67, of heart failure.

Deutsch, Morris I. ⊕ Far Rockaway, N. Y.; University and Bellevue Hospital Medical College, New York, 1914; member of the staff of the Rockaway Beach (N. Y.) Hospital and St. Joseph's Hospital; died April 4, aged 58, of coronary thrombosis.

Dudley, Gustave Beauregard ⊕ Martinsville, Va.; Medical College of Virginia, Richmond, 1918; served during World War I; died April 7, aged 58.

Ferris, Edward Day, Brooklyn; University of the City of New York Medical Department, New York, 1893; member of the American Medical Association; fellow of the American College of Surgeons; member of the Selective Service Board during World War I; on the staff of the Norwegian Lutheran Deaconesses' Home and Hospital, where he died April 5, aged 86.

Fuller, Spencer Sam ⊕ Riverside, Ill.; Rush Medical College, Chicago, 1902; past president of the school board; served as village health commissioner; died April 3, aged 77, of coronary occlusion.

Gardiner, Harry Miller ⊕ Medfield, Mass.; Hahnemann Medical College and Hospital of Philadelphia, 1931; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association and the New England Society of Psychiatry; served during World War II; assistant superintendent of Medfield State Hospital; died in Baker Memorial Hospital, Boston, April 3, aged 46, of cardiac hypertrophy, hypertension, and nephrosis.

Gibson, John Francis, Olympia, Wash.; University of Texas School of Medicine, Galveston, 1906; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; on the staff of St. Peter's Hospital; died April 2, aged 70.

Gulliver, Francis Daniel ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1903; affiliated with St. Vincent's Hospital; died April 12, aged 72, of neoplasm.

Johnson, James Paton, Dallas, Texas; Barnes Medical College, St. Louis, 1904; died in Baylor University Hospital March 27, aged 74, of acute cardiac infarction.

Johnston, Walter, Seattle; Jefferson Medical College of Philadelphia, 1887; died March 24, aged 88, of arteriosclerotic heart disease.

Kaveney, Irving Edward ⊕ Port Angeles, Wash.; University of Illinois College of Medicine, Chicago, 1931; served during World War II; died recently, aged 46.

Kinloch, Everett Starke, Troy, N. Y.; Albany (N. Y.) Medical College, 1895; died March 17, aged 82, of right hemiplegia.

Kyser, James Allen, Madison, Ala.; Tulane University of Louisiana, New Orleans, 1911; member of the American Medical Association; chairman of the Farmers & Merchants Bank; died March 11, aged 70, of cerebral hemorrhage.

Maurer, Frederick Henry ⊕ Peoria, Ill.; Rush Medical College, Chicago, 1915; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics, American Association of Physicians and Surgeons, Central Illinois Pediatric Society, and Alpha Omega Alpha; member and past president of the Peoria Medical Society; served during World War I; member and past president of the St. Francis Hospital staff; died April 22, aged 60, of coronary thrombosis.

Montgomery, Charles William, Pasadena, Calif.; Kentucky School of Medicine, Louisville, 1892; also a druggist; died March 13, aged 82.

Mooney, Charles Neil, Oakland, Calif.; Cooper Medical College, San Francisco, 1906; died in San Francisco April 4, aged 68, of tuberculosis.

Morton, Andrew Wade ⊕ San Francisco; University of Tennessee Medical Department, Nashville, 1892; died March 26, aged 82, of coronary occlusion.

Myers, John George Leonard, Bloomingdale, Ind.; Medical College of Indiana, Indianapolis, 1884; died April 1, aged 93.

Neumann, William Henry ⊕ Sheboygan, Wis.; Northwestern University Medical School, Chicago, 1904; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staffs of Memorial Hospital and St. Nicholas Hospital, where he died March 11, aged 71, of coronary thrombosis.

Norconk, Ward Herman ⊕ Bear Lake, Mich.; Chicago College of Medicine and Surgery, 1917; past president of the Manistee County Medical Society; served during World War I; affiliated with Mercy Hospital and Sanitarium, where he died March 29, aged 59, of coronary thrombosis.

O'Connor, Charles Emmett, Washington, D. C.; Georgetown University School of Medicine, Washington, D. C., 1895; retired medical officer of the department of interior; died March 29, aged 83.

Oertel, Henry Benjamin, Kissimmee, Fla.; University of Georgia School of Medicine, Augusta, 1901; member of the American Medical Association; died recently, aged 76.

Parnell, Charles Nicholas, Maplesville, Ala.; Medical College of Alabama, Mobile, 1891; member of the American Medical Association; died April 5, aged 84, of senile dementia and diabetes mellitus.

Pike, Walter Franklin, Sonora, Calif.; Denver and Gross College of Medicine, 1903; died March 25, aged 74.

Pratt, Charles Augustus ⊕ New Bedford, Mass.; Harvard Medical School, Boston, 1891; an Associate Fellow of the American Medical Association; honorary trustee and past president of the medical staff of St. Luke's Hospital; died April 3, aged 88, of terminal pneumonitis, diabetes mellitus, and arteriosclerosis.

Rieser, Sidney Loeb ⊕ New York; University and Bellevue Hospital Medical College, New York, 1916; on the staffs of Sydenham and Doctors hospitals; died April 12, aged 57, of coronary thrombosis.

Sargent, Laurrie Dodd, Washington, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1903; past president of the Washington County Medical Society; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians and the National Tuberculosis Association; served during World War I; trustee of the Woodville (Pa.) State Hospital; affiliated with Hillsview Sanitarium and Washington Hospital, where he died April 6, aged 72, of coronary thrombosis.

Schermerhorn, John Ralph ⊕ Schenectady, N. Y.; Albany Medical College, 1905; member of the American Academy of Dermatology and Syphilology; past president of the Schenectady County Medical Society; affiliated with Ellis Hospital; died in Tampa, Fla., March 28, aged 71.

Schmidt, Frederick Hermes, Woodstock, Ill.; Chicago College of Medicine and Surgery, 1911; member of the American Medical Association; died near Genoa City, Wis., March 22, aged 68, of injuries received in an automobile accident.

Schwankhaus, Paul H., Louisville, Ky.; University of Louisville Medical Department, 1898; on the staffs of Deaconess and SS Mary and Elizabeth hospitals; died March 13, aged 72, of hypertensive cardiovascular disease.

Siler, Levi Steely, Corbin, Ky.; Hospital College of Medicine, Louisville, 1903; member of the American Medical Association; died March 21, aged 73, of multiple sclerosis.

Skarstrom, William, Duxbury, Mass.; Harvard Medical School, Boston, 1901; professor emeritus of hygiene and physical education at Wellesley (Mass.) College; died March 24, aged 81.

Slattery, George Norbert ⊕ New York; University and Bellevue Hospital Medical College, New York, 1909; formerly clinical assistant professor of medicine at his alma mater; at one time house physician for the Metropolitan Opera Company; died March 27, aged 69, of cardiac disease.

Smith, Rolla Lamar, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; member of the American Medical Association; died March 17, aged 84, of pneumonia.

Sooy, John Lynch, Pleasantville, N. J.; College of Physicians and Surgeons, Baltimore, 1912; died in Atlantic City (N. J.) Hospital March 29, aged 64, of carcinoma of the pancreas.

Spier, Oscar Agnew, New York; Eclectic Medical College of the City of New York, 1901; served in France during World War I; died March 8, aged 69, of coronary thrombosis.

Spyker, John Huston, Decatur, Ill.; College of Physicians and Surgeons, Baltimore, 1902; member of the American Medical Association; affiliated with Decatur and Macon County Hospital; died March 25, aged 74, of heart disease.

Steedle, Joseph G., McKees Rocks, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1902; member of the American Medical Association; served in the state legislature; for one term burgess of McKees Rocks; on the staff of the Ohio Valley General Hospital; died March 8, aged 70, of coronary occlusion.

Steele, Robert Lowry, McKeesport, Pa.; University of Pittsburgh School of Medicine, 1903; member of the American Medical Association; died April 3, aged 74, of carcinoma of the prostate.

Stephenson, Frank Halleck, Cazenovia, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1878; member of the American Medical Association; for many years affiliated with the Memorial Hospital in Syracuse; died March 8, aged 94, of cerebral arteriosclerosis.

Stiffey, Philip Ellsworth, Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1912; member of the American Medical Association; on the staff of the Grant Hospital; died March 11, aged 67, of heart disease.

Stoddard, James ⊕ Buffalo; L.R.C.P., Edinburgh, L.R.C.S. Edinburgh, and L.R.F.P. & S., Glasgow, 1888; University of Edinburgh Faculty of Medicine, 1892; an Associate Fellow of the American Medical Association; died in Derby, N. Y., April 8, aged 94, of arteriosclerosis.

Stowell, Harold Bishop, Watertown, N. Y.; Albany Medical College, 1895; member of the American Medical Association; died in the House of the Good Samaritan March 16, aged 77, of heart disease following pneumonia.

Stuart, Albert Berry, Cloquet, Minn.; University of Nebraska College of Medicine, Omaha, 1904; member of the American Medical Association; served in France during World War I; for many years chairman of the library board; member of the fire commission; affiliated with St. Luke's Hospital in Duluth; died March 21, aged 68, of cerebral hemorrhage.

Summerbell, Ferris, Fallon, Nev.; Baltimore Medical College, 1905; member of the American Medical Association; died in Churchill County Hospital in Churchill March 2, aged 73, of pulmonary edema and cardiac decompensation.

Swan, Charles Arthur ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1916; member of the American Association of Industrial Physicians and Surgeons; affiliated with Lakeside, Charity, and St. Luke's hospitals; medical director of the Standard Oil Company and Yellow Cab Company; for many years medical director of the Halle Brothers Department Store; chief medical examiner for the Equitable Life Assurance Society of the United States; died in Bradenton, Fla., April 4, aged 59, of injuries received in an automobile accident.

Thrasher, A. Wade, Los Angeles; Central College of Physicians and Surgeons, Indianapolis, 1894; formerly on the staff of Methodist Hospital, Indianapolis; died March 29, aged 78, of cardiac decompensation.

Tupper, Virgil L. ⊕ Bay City, Mich.; Jefferson Medical College of Philadelphia, 1896; an Associate Fellow of the American Medical Association; past president of the Bay County Medical Society; fellow of the American College of Surgeons; on the staff of Mercy Hospital; died April 13, aged 82.

Vates, Charles William ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1912; served overseas during World War I; member of the staff of South Side Hospital and on the visiting staff of Magee Hospital; served as director of schools and director and vice president of the First Federal Savings and Loan Association of Mount Oliver; died April 2, aged 66, of coronary occlusion.

Weinberg, Frederick Julius, New York; Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main, Prussia, Germany, 1924; died March 12, aged 57.

Wickstrom, Albert M. ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; died in the Salvation Army Hospital April 1, aged 78, of carcinoma of the prostate.

Williamson, George H. ⊕ Neenah, Wis.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; past president of the Winnebago County Medical Society; supreme medical examiner emeritus for the Equitable Reserve Association; a director of the Wisconsin Anti-Tuberculosis Association; for many years chairman of the Neenah Health Council; died April 2, aged 82.

GOVERNMENT SERVICES

ARMY

Gastro-enteritis.—The Office of the Army Surgeon General reports that in the outbreak of acute gastro-enteritis at Fort Meade, Md., on May 17, a total of 389 men were sick enough to report to the dispensary, and 10 are known to have become ill on a bus after leaving the post. Of the 389 men, 102 were hospitalized. Epidemiological evidence indicates that corned beef hash served at breakfast May 17 was the source of infection. The incubation period varied from one to six hours. A staphylococcus was isolated from vomitus, but this organism has not yet been incriminated as a toxin producer.

An outbreak of gastro-enteritis that occurred among Air Force personnel stationed in the Pentagon Building May 17 is still under investigation. The Bolling Air Force Base Laboratory reports that a staphylococcus has been isolated from remnants of ham that was served. It has not been determined whether the organism is a toxin producer.

Award and Commendation.—The Legion of Merit was recently awarded to Col. Robert C. Robertson, Chattanooga, Tenn. The citation reads in part as follows:

"Colonel Robert C. Robertson, (then Lieutenant Colonel), Medical Corps, performed exceptionally meritorious service as Orthopaedic Consultant, Office of the Chief Surgeon, United States Army Forces, Pacific Ocean Area, from March 1942 to September 1945. He greatly assisted in the formulation of policies and the selection, training and supervision of personnel in connection with the treatment of orthopaedic casualties in the theater. Colonel Robertson carried on his mission of supervision and training within the combat area hospitals and down through the chain of evacuation, to the battalion aid stations of the United States Army Forces engaged in Saipan, Guam, Leyte and Okinawa. Through his outstanding professional skill, leadership, understanding and tact, he made a material contribution to the mission of the Medical Department in the Pacific Ocean Area."

Personal.—Maj. Gen. George E. Armstrong, the new Surgeon General, was named outstanding medical alumnus of 1951 by the Indiana University School of Medicine, Indianapolis, at the annual alumni day May 9. General Armstrong delivered an address on the "Armed Services and the Physician."

AIR FORCE

Award Given Colonel Mashburn.—Col. Neely C. Mashburn, MC, U. S. Air Force, retired, who devised an apparatus 25 years ago that is still being used to predict flying aptitude in cadet applicants, is the 1951 recipient of the Raymond F. Longacre Award of the Aero Medical Association. Used extensively during and since World War II, the complex coordination test has proved one of the most reliable means to predict success in pilot training. It has been given more than a million applicants. Despite the great differences in training methods as well as in the size and speed of aircraft used now and those of 25 years ago, the Mashburn test remains highly predictive.

The Longacre Award, named in commemoration of a pioneer Air Force flight surgeon, is given annually for outstanding accomplishment in the psychiatric and psychological aspects of aviation medicine. Colonel Mashburn, who retired in 1948 after more than 31 years of active service, now lives in San Antonio, Texas.

New Preventive Medicine Chief.—Col. Fratis L. Duff has assumed the duties as chief of the Preventive Medicine Division, Office of the Surgeon General, U. S. Air Force. Colonel Duff received his master's degree in public health at Johns Hopkins University in 1950, and he has been certified by the American Board of Preventive Medicine and Public Health as a specialist; he is presently completing his doctorate in this field. Practical experience includes three years of field work in Egypt and Japan; five years of teaching tropical medicine and parasitology at the School of Aviation Medicine, and two years as sanitary engineer for the Public Health Department in his home city, Lawton, Okla.

Personal.—At the recent meeting of the Aero Medical Association in Denver Maj. Gen. Harry G. Armstrong, Surgeon General of the U. S. Air Force, was installed as president, while Maj. Gen. Dan C. Ogle, Deputy Surgeon General, U. S. Air Force, was elected vice president. Col. Robert J. Benford (MC) of the Air Force, headquarters Air Research and Development Command, was reelected to the executive committee. The next meeting will be held in Washington, D. C., next spring.

Aero Medical Laboratory.—The U. S. Aero Medical Laboratory will participate in a joint wet-cold field test at Cold Bay, Alaska, next September. The test will be coordinated with the Alaskan Air Command. Invitations to participate have been sent to the Royal Canadian Air Force and Royal Air Force.

VETERANS ADMINISTRATION

Service for Veterans Who Stutter.—Veterans who stutter may be helped through a nine-week course offered under the G.I. educational bill by Northwestern University, Evanston, Ill. The course, which is called an "Intensive Group Stuttering Project," is a program of both individual and group therapy procedures by the staff of the speech clinic. The program has helped many veterans since its inception in 1949. Veterans who seek help through this program must complete eligibility processing and be enrolled on or before July 25, 1951. No college "credit" in course hours is given. To apply for the course, the veteran must come to the clinic for an interview, at which time his needs will be assessed, and, if eligible, his eligibility processing will be initiated. Receipt of eligibility papers from the VA completes enrolment. No other steps need be taken beyond bringing these papers to the clinic. Contact Charles R. Elliott, Speech Clinic, Northwestern University, Evanston, Ill. Phone Evanston, University 4-1900, extension 247.

National Advisory Committee.—Representatives of 41 national organizations affiliated with the Veterans Administration voluntary service national advisory committee met at the VA hospital in Framingham, Mass., May 24-25 to observe volunteer workers at their tasks in helping care for patients. The visitors observed a demonstration by hospital staff members of the team approach to the so-called "whole person" care and treatment program at the opening session. The delegates observed the work of volunteers in all phases of hospital work.

The committee heard addresses by Carl R. Gray Jr., administrator of veterans affairs, and Dr. Joel T. Boone, vice admiral (MC, USN), retired, the VA's chief medical director. A part of the session was devoted to an evaluation of the volunteers' work at the hospital. Volunteer hospital workers, the national and local hospital advisory committees, the hospital staff, and VA central office staff members attending participated in the discussion.

Hospital News.—On May 10 the staff of the Veterans Administration hospital at Outwood, Ky., was addressed by Dr. A. J. Miller, professor of pathology, University of Louisville School of Medicine, on "Tumors of the Kidney." Dr. E. L. Pirkey, professor of radiology, addressed the group May 17 on "Medical Uses of Radioisotopes."

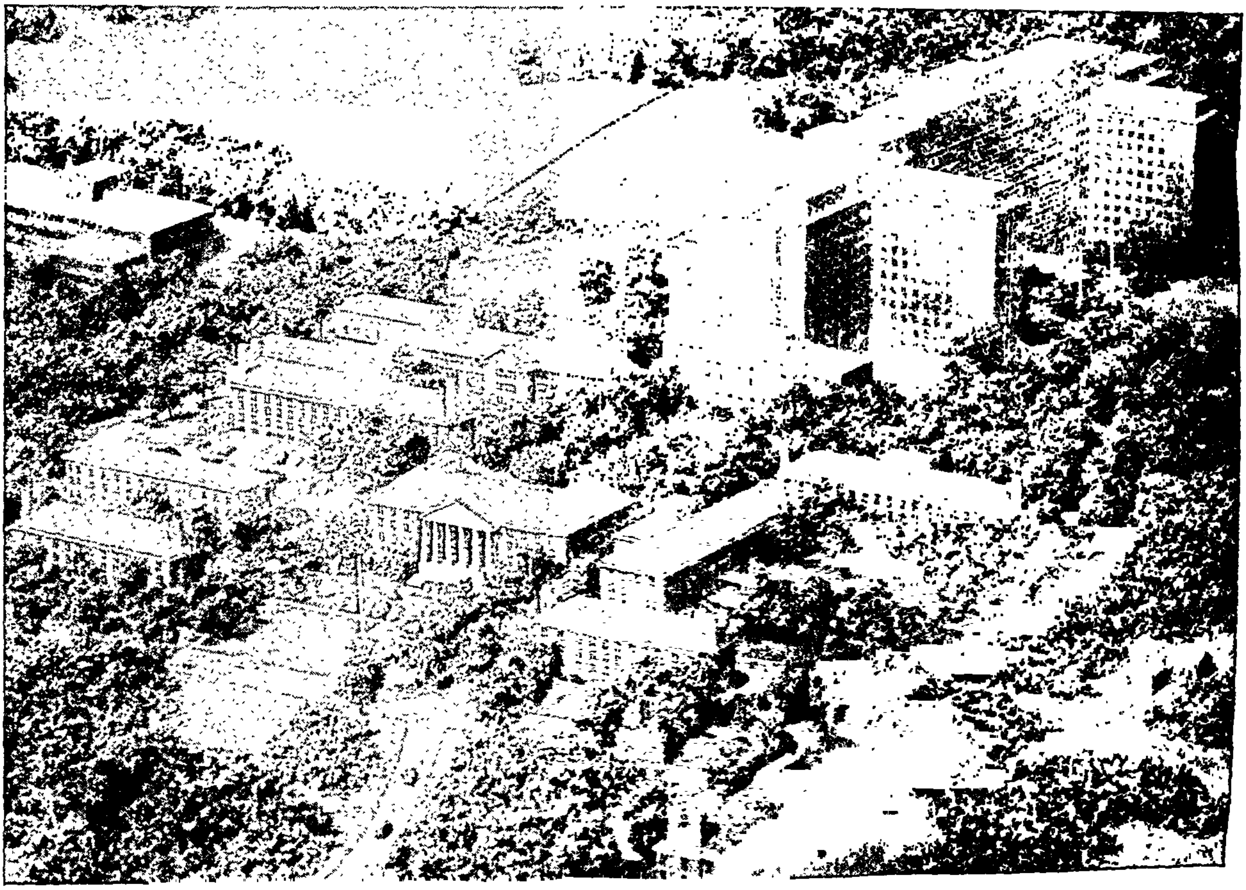
PUBLIC HEALTH SERVICE

New Clinical Center for Medical Research.—The President will lay the cornerstone of the Public Health Service's new Clinical Center for Medical Research at Bethesda, Md., June 22. A large number of medical scientists and educators are expected to attend the cornerstone ceremonies.

This unique 500-bed addition to the National Institutes of Health is now under construction. Authorized by Congress in 1947, it was started in 1948 and will be completed in the latter part of 1952 at a cost of about 40 million dollars. A limited number of special patients will be admitted by January, 1953, and full operation will be reached about a year later.

Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, described the Clinical Center as "the only combined laboratory-hospital in the world especially designed for research on a group of important chronic diseases—cancer, heart disease, mental, metabolic and neurological diseases, and blindness." Dr. Scheele said that close coordination of basic and clinical research within the walls of a single hospital will help reduce the time lag between a laboratory discovery and its use for the benefit of patients. He said the new center, unlike the average hospital, will have twice as much space for laboratory research as for patient care. Bed and laboratory facilities will be set aside, floor by floor, for the study of each of the diseases with which the National Institutes of Health is specifically concerned. Restriction of patients to those having the few but extremely important diseases undergoing investigation will permit scientists to study in a short time relatively large numbers of patients with the same disease.

Dr. Scheele emphasized that while the center will be devoted to research, the welfare of the patient will be of primary importance. The individual patient will receive, according to his needs, the best medical care, including surgery, nursing, psychiatry, and all other specialized services.



The new Clinical Center for Medical Research.

Dr. John A. Trautman, now medical officer in charge of the Marine Hospital, Staten Island, N. Y., will be the director of the new Clinical Center for Medical Research. A career officer with 22 years in the Public Health Service, Dr. Trautman brings to his new post wide experience both as a hospital administrator and as a clinical investigator.

Hill-Burton Act Hospitals.—The Public Health Service on March 31, 1951, had approved 1,524 applications for the construction of hospitals, health centers, and related facilities under the Hill-Burton Hospital Survey and Construction Act. The estimated cost of the construction is $1,105,510,000, of which the federal share is about $402,115,000. The projects would add 73,000 beds and 233 health centers to this country's medical care facilities. Construction projects that have been completed and are now in operation total 429. These provide nearly 13,000 of the 73,000 beds that will be made available by approved projects.

The following lists show the states with the largest number of approved projects, those adding the largest number of beds, and those with more than 500 beds provided by projects completed and in operation.

States with 50 or more approved projects: South Carolina, 106; Texas, 88; Georgia, 86; North Carolina, 81; Mississippi, 73; New York, 63; Oklahoma, 59; Ohio, 52, and Louisiana, 52.

States with approved projects providing over 2,500 beds: Texas, 5,057; Ohio, 3,526; North Carolina, 3,462; New York, 3,389; Pennsylvania, 3,086; Oklahoma, 2,973; Puerto Rico, 2,909; New Jersey, 2,824, and Kentucky, 2,545.

States with over 500 beds in completed projects: Texas, 1,132; North Carolina, 934; Kentucky, 707; Tennessee, 612; Georgia, 603; Florida, 555; Mississippi, 554, and Oklahoma, 512.

Seventy-four of the 233 approved health center projects have been completed and are in operation. Mississippi has 23, South Carolina 22 and Georgia 15. Other states have but one or two completed projects.

FOREIGN LETTERS

AUSTRALIA

Encephalitis Epidemics in Australia.—Epidemics of severe human encephalitis are in progress in various parts of this continent. The evidence indicates that they are due to the Japanese B type of encephalitis virus; horses and dogs are likely reservoirs; a mosquito is the possible vector, and migratory birds may be the means of introduction into the country.

There have been previous epidemics of encephalitis in Australia—1917-1918, 1922, and 1925. The present epidemic showed itself early this year in an area known as the Murray Valley, in North Victoria. This area is used for irrigated agriculture, and mosquitoes are prevalent due to the abundant water.

The typical case history is one of commencing irritability and headache, followed by nausea and vomiting with temperature to about 105 F. A moderate degree of neck stiffness then develops, with some irrationality, even to violence. Tremors and localized spasticity are common. Coma then develops, associated with muscle flaccidity. Some die, and others slowly improve and completely recover.

Typical laboratory findings in the spinal fluid are as follows: 100 cells per cubic millimeter (range 20-750) comprising polymorphonuclear leukocytes, lymphocytes, and up to 10% monocytes. Protein content is slightly increased. Chlorides are decreased, and sugar is normal or slightly decreased. Children below 12 years predominated in the age distribution, but all ages are susceptible. The majority were males.

Frozen central nervous system tissue was brought to the Walter and Eliza Hall Institute of Medical Research in Melbourne, and emulsions were inoculated into developing chick embryos and laboratory animals. After five days, on second passage, focal lesions were produced on the chorioallantoic membrane of the chick embryo. When this was transferred to the brains of mice, rapidly fatal encephalitis developed.

It was found that the focal lesions on the chick membrane provided a valuable antigen for the complement-fixation test. Nearly all (19 of 21) of the convalescent encephalitis patients in the area showed high titer antibody in their blood serum. Results in 10% of 109 contacts were positive. Antibodies were present in 11 out of 19 horses and two of four dogs in the area affected. But results were negative in the serums of 53 sheep, 17 cows, 5 ducks, and 16 pigs.

The serums of the staff of the Hall Institute did not contain antibodies. Serum in isolated cases of encephalitis in Melbourne also failed to show antibodies.

A guinea pig serum prepared against Japanese encephalitis B reacted strongly in a complement-fixation test with the virus isolated in this epidemic. This serum had been prepared in the Commonwealth Serum Laboratories. From a study of the other properties of the virus, the clinical and epidemiological characters, and the serological evidence, there is a strong assumption that the virus isolated is identical with that of Japanese B encephalitis.

By an unfortunate coincidence, this Murray Valley area had been recently the venue of a successful transmission experiment of the virus of myxomatosis among wild rabbits, the vector also being the mosquito. (The wild rabbit is a serious pest in Australia.) Some public alarm was caused by the association of the two epidemics, and the use of rabbit flesh as a food fell into serious disfavor. Fears were mostly allayed, however, after the public statement by Sir F. M. Burnet, director of the Hall Institute and research professor of experimental medicine in the University of Melbourne, that there was no relation between the two diseases. The encephalitis virus produces no symptoms or lesions in rabbits.

Two thousand miles away from the Murray Valley, on Mornington Island in the Gulf of Carpenteria (Northern Australia), serums from aboriginal patients suffering from encephalitis have been shown to contain complement-fixing antibodies active against the Murray Valley virus. A field study is in progress by the staff of the Queensland Institute of Medical Research, and serums will be taken, for investigation at the Hall Institute in Melbourne, from every inhabitant of the island and every accessible animal and bird. Sporadic cases in rural Queensland will also be investigated. This outbreak, occurring as it does in a geographic line between Japan and Victoria, lends support to the view that the virus was introduced by migratory birds.

Death of "Flynn of the Inland"—On May 5 occurred the death of a legendary character who devoted his life to the development of medical services in the sparsely populated interior of this country. He was superintendent of the Australian Inland Mission, a position he had held for 40 years. He had seen it grow from a plan drawn with a stick on the sands of Central Australia to a highly efficient service covering a territory equal in area to half of Europe (2 million square miles) and costing $100,000 per year to maintain.

The Very Reverend Dr. John Flynn, O.B.E., ranks with such immortals as Gorgas of Panama, Antle of British Columbia, and Grenfell of Labrador. He was a Presbyterian minister and for the usual term occupied the highest position in that church in Australia, that of moderator-general. His vision and his pioneering spirit transcended that of a denominational dignitary. It is indeed seldom that a man is canonized in his lifetime.

During the period 1912-1928, he had established 13 small hospitals, each staffed by two trained nurses; in May 1928 at Cloncurry, in Western Queensland, the first "Flying Doctor" set out on his rounds. His territory was larger than France. Only two years previously, Alfred Traegar, an electrical engineer of Adelaide, had designed a small wireless set capable of receiving and transmitting voice and Morse code. The power for this is generated by the operator riding a fixed bicycle, the back wheel of which drives a generator. Until radiotelephony could be used, Traegar designed a typewriter keyboard that automatically sent out the letter in Morse code. All the operator had to do was to sit on the bicycle and pedal, then tap out the message on the keyboard of the typewriter. Even that ingenious system was developed to the stage of voice transmission. Before 1939 the cost of a pedal-generated "transceiver" was about £70 ($155), with an annual upkeep cost of $6. A child of 10 could operate it. Up to 500 miles is a normal range. It has been effective over 2,000. This system of communication enables the mother in a remote homestead to "ring up" the doctor and ask his advice. With the aid of the Flying Doctor Medical Chest in every homestead, many common ailments can be treated and emergency care given. It is in overcoming the feeling of isolation that the Flying Doctor serves so well. The service is aptly known as a "Mantle of Safety," because it gives these lonely people an increased feeling of security.

The Flying Doctors are usually given other duties by the government. Dr. Allen Vickers, one of the first of them, had been appointed a police magistrate, protector of aborigines, and mining warden. One day he flew to Marble Bar (the hottest town in Australia) from Port Hedland in the far northwest. During the day, he saw 12 patients, performed two operations, held an inquest, conducted a court case, pulled innumerable teeth, renewed the licenses of five hotels, and granted applications for mining leases and permits for native labor. Then he flew home for dinner in his aerial ambulance.

On another occasion, a dislocated shoulder was reduced by wireless. The doctor was in his surgery at Broken Hill, seated before a microphone. A woman pedalled her transceiver set at Innamincka, 400 miles away. In the room was the injured man sitting on a stool. A police trooper and stockman stood by the man to do the manipulating according to the directions of the doctor, relayed over the woman's shoulder from her position at the set.

The items in these letters are contributed by regular correspondents in the various foreign countries.

"Hold his elbow close to his side. Have you got that? Over to you." "We are holding his elbow close to his side. What next? Over to you."

"Let the other man hold the forearm; do you get the idea? Over to you."

And so it went on, until a grunt from the patient and a dull click from the shoulder made medical history.

John Flynn's dream has not only come true, it has proved itself and has become a permanent part of Australia's medical services. It provides a means whereby the practice of medicine may be carried to a large number of people who cannot efficiently be reached in any other way. On the badge of the Flying Doctor Service are the three words "Medicine, Aviation, Radio."

McGill University in 1940 conferred on John Flynn the honor of doctor of divinity in recognition of his life's work to humanity. In 1933 he was honored by the King with the Order of the British Empire. So far, in no other country of the world has John Flynn's triology of medicine, the airplane, and the radio been associated in such a service to isolated people. This saga of Flynn's is a contribution which Australia offers to other nations to assist them in solving similar problems, which must exist in many countries.

Dropping Medical Supplies from the Air.—In the interests of speedy delivery of perishable medical supplies, such as blood for transfusions and the equipment for its administration, experiments were made in Victoria with various types of dropping equipment. One of the parachutes tested was developed in New Zealand for "chuting" supplies to deer stalkers in the mountains. It is made of sacking, and it is claimed that anyone who can use a bag needle can make one in an hour. The blood bottles (½ liter) were packed in sawdust in a cardboard carton, wrapped in two woolen blankets. This was attached to a sacking parachute. The drop was from 600 feet. Recovery was completely satisfactory.

Similar results were obtained with a full drop in a "storpedoette," invented by Mr. T. R. Morris. This container is made of cardboard, 2 ft. long by 8 in. wide, and shaped like a bomb. It has a pressurized conelike nose which is designed to burst at a pressure of 3,500 lb. The nose is crushed on impact, and this protects the contents of the package.

BELGIUM

Hospitals for the Insane.—There is a tendency toward replacement of the term "insane asylum" by psychiatric clinic or hospital. The psychological reasons in favor of this modification are understandable. However, this change must be simultaneous with reforms to convert all the asylums into institutions of true hospital type. The management of hospitals for the insane needs great basic changes. Guided by these facts, Lamsens, in a presidential address opening the last session of the Society of Mental Medicine of Belgium, traced the history of the Duffel Asylum, near Antwerp. Duffel was a small asylum that could house 600 patients. It was destroyed in 1914, and reconstructed after the war. It was then reserved for chronically ill patients, who numbered only 234 in 1926. In the course of the last 25 years, new services were added—a medico-pedagogical center, a maternity ward, an antituberculosis dispensary, an establishment for children and a school for nurses. The mental patient benefits from the existence of other services which create a therapeutic atmosphere of assistance as well as an environment of transition back to society. Lamsens condemned obsolete therapy, the methods of enforcing isolation, punishment, and the abuse of sedatives, and stressed the importance of occupational therapy.

Exophthalmos Due to Endocrine Disturbances.—The Belgian Society of Ophthalmology devoted an important session to the study of Danis and Mahaux's report on exophthalmos caused by dysendocrisiasis. The authors, in discussing the orbito-ocular symptoms associated with hypothyroidism and hyperthyroidism, emphasize the need of exophthalmometric measurements; certain symptoms, such as the retraction of the upper eyelid, may mislead one into thinking that exophthalmos is present, while others, such as edema of the eyelids, may mask a real exophthalmos. A sudden suppression (by surgical or by medical means) of a hyperthyroid manifestation appears dangerous, since it stimulates hypersecretion of the hypophyseal thyrotropic hormone.

The emergency treatment of malignant exophthalmos may require decompressive orbital trephining or blepharorrhaphy. Some authors believe that "dry" exophthalmic goiter of the Basedow type and malignant edematous exophthalmos have a common basis, differing only quantitatively. The role of the hypophyseal thyrotropic hormone has been clearly established in this condition. This hormone induces a collagen disease characterized by an abnormal increase of mucopolysaccharides in the orbit, which causes orbital edema and degeneration of the eye muscles. Weekers maintains that there are transition forms between "dry" and edematous exophthalmos. In certain cases of thyrotoxicosis, exophthalmos may even be absent.

De Walsche discussed unilateral exophthalmos. True unilateral exophthalmos is said to be very rare. Most of the time, the exophthalmos is more pronounced on only one side. Its existence is ascribed to unknown local factors.

Welders' Disease.—In a paper published in *Médecin d'Usine*, Mignolet ascribed the majority of intoxications observed in 216 welders (blow torch or electric arc) to three main causes: (*a*) the cutting of sheet iron or other metals previously painted with lead colors, galvanized or, more rarely, coated with cadmium, in which case there is real volatilization of toxic metals due to the heat of the blow torch; (*b*) the use of certain rods or electrodes for electric arc welding, the covering of which contains or produces toxic products on combustion; (*c*) gases of combustion, such as carbon monoxide and nitrous gases which accumulate in confined quarters or an ill-ventilated workshop (welding in furnaces, tanks and boilers). The study of the cases observed shows that electric arc welding is definitely more dangerous and harmful than the other soldering procedures. It seems that it is possible to attribute the respiratory and digestive incidents to the fumes caused by welding. Welding shops, especially for electric welding, should be well ventilated especially in the proximity of the electric arc.

Pulmonary Asbestosis.—At the Society of Occupational Medicine, Clerens reported the results observed in 75 cases of asbestosis, presenting a well documented study. Function tests were performed, sputum was examined for asbestos content, and results were then interpreted. However, as in other pneumoconioses, greatest attention should be given to roentgenologic study. Clerens' statistics differ from those published by Anglo-Saxon authors, owing perhaps to the fact that the latter studied mainly workers of the asbestos textile industry, while Clerens was especially interested in fibro-cement workers. A case is reported in which it was concluded, from clinical observation and the results of necropsy, that death was due to cardiac decompensation. Clerens, however, suggested that the case history indicated that pulmonary asbestosis was a possible diagnosis.

Hemostatic Action of Amniotic Fluid.—At the Belgian Society of Clinical Biology, Verstraete discussed the coagulating action of amniotic fluid. The coagulation time of normal blood is shortened to half in the mixtures of one part of amniotic fluid with 25 parts of blood. The amniotic fluid does not contain prothrombin, thrombin or fibrinogen. Its coagulating action seems to be similar to the effect of suspensions of thromboplastin. It is probable that the amniotic fluid possesses the two constituents of thromboplastin (the plasma factor and the cellular factor). The thromboplastin preparation made from the placental tissue is more active, resistant and thermostabile than the extracts prepared from the lung or the brain.

Surgery of Arteries.—At the Belgian Society of Cardiology, Govaerts reported on the results he obtained with embolectomy and endarteriectomy. He made the following conclusions: (*a*) Embolectomy must be performed immediately if severe signs of ischemia appear within a few hours after the accident. On the other hand, if the disturbances are little pronounced, it is preferable to wait for the improvement of the collateral circulation. (*b*) In arterial thrombosis, sympathectomy favoring collateral circulation is indicated. Endarteriectomy is in principle more logical than venous graft, because the anatomic integrity of the vascular system of the extremity is reestablished. Endarteriectomy must be reserved for limited lesions in young persons and should be done under the protection of heparinization.

TURKEY

Kala-Azar in Turkey.—At the 3d Turkish microbiology congress held at Ankara Oct. 4-6, 1948, Prof. Arif Ismet Çetingil of Istanbul University reported on kala-azar in Turkey, the first case of which appeared in Turkish medical literature in 1931. The clinical symptoms resembled those of malaria, but spleen puncture revealed Leishmania donovani. The patient, a girl of 16, was given 32 days of ethylstibamine therapy and recovered. In 1935, Professor Çetingil diagnosed kala-azar (autochthonous) in a second case, in a boy 5 years. The patient was presented at a meeting of the Turkish medical society. In 1935, kala-azar was diagnosed in three cases at the same medical department of the university in children 6 to 7 years old. Extreme splenomegaly, hepatomegaly, and anemia were present in all patients, and sternal and spleen puncture revealed Leishmania. The red blood cell count was two to three million, the white blood cell count 1,900 to 2,400, and the hemoglobin value 30 to 40%. The differential study of the white cells showed 7 transitional mononuclear cells, 44 polymorphonuclear neutrophils, 41 lymphocytes and 8% large monocytes. Results of the formol-gel and Chopra-Gupta tests were strongly positive. There were a great number of freely circulating Leishmania. Every other day these three patients received a 0.05 gm. intravenous injection of ethylstibamine; the dose was gradually increased to 0.3 gm., and the total dose was 1.95 gm. Two patients recovered; the third patient, though given a blood transfusion and pentose nucleotide, died of agranulocytosis.

From 1937 to 1948, Ord. Prof. Ihsan Hilmi Alantar of Istanbul University Children's Hospital treated 25 children, 9 months to 11 years old, for kala-azar. During the same period, 10 children, 2 to 8 years old, were treated for kala-azar by Dr. Ali Sükrü Savli, director of the Istanbul Municipal Hospital (Haseki) children's department; also, Dr. Sirri Halil Aksoy, chief of the Istanbul -Haydar Pasha General Hospital children's department, reported 13 children, 1 to 11 years old, with kala-azar. From 1938 to 1948, Dr. N. Fakaçelli of St. George Hospital, Istanbul -Pera, reported 49 cases, of which 37 were autochthonous kala-azar in children 16 months to 9 years old. In 1945, Prof Muzaffer Chevki Yener, Istanbul University medical department, reported a case of kala-azar in a man of 23. The patient had all the symptoms of kala-azar; Leishmania were recovered from the spleen and the liver, but the sternal puncture was negative. The patient was given ethylstibamine and recovered. This patient, had probably contracted the disease at Manisa, near Smyrna. Prof. Nebil Bilhan, Istanbul University, reported five cases in adults (20 to 42 years old). Three patients were from Istanbul, and two were from Bursa; four recovered, and one died of agranulocytosis. The late Dr. Osman Serefeddin Çelik, Istanbul Charity Hospital (Topkapu), diagnosed the disease in three adults. Associate Professor Celal Ertug, Ankara University, and Dr. Asil Mukbil Atakam, Koya, each reported one adult case. In 1945, Professor Çetingil reported a case in a man of 40; the patient was given ethylstibamine therapy and recovered.

The kala-azar seen in Turkey resembles the Mediterranean type, it occurs mostly in children. Almost all patients contracted the disease in Istanbul or its environs, or on the Marmara, the Aegean or the Mediterranean seacoast. Kala-azar contracted on the Black seacoast has not yet been reported. Two patients were natives of Rize, on the Black seacoast, but had evidently contracted the disease in Istanbul. There have been no hospital cases of kala-azar in Central Anatolia reported in Turkish medical literature. Kala-azar has been added to the list of insect-borne diseases occurring in Turkey. During the summer and autumn, the phlebotomus is found almost everywhere in Turkey—mostly P. papatasii, but P. major, sergenti, chinesis and minutus are also encountered. As the symptoms of kala-azar closely resemble those of malarial fever, Leishmania organisms are looked for in all patients in whom a diagnosis of chronic malaria has not been absolutely confirmed. All hospitals in urban and rural communities provide free examination and treatment. Why kala-azar in Turkey is sporadic and never epidemic has not yet been ascertained.

Hydatid Cyst in the Parametrium.—Dr. Emir Necip Atakam, chief of the Istanbul Şişli Hospital gynecological department, reported a case of a single, primary hydatid cyst in the parametrium. The patient, a 19 year old married woman, had a normal delivery at 17. A year later, she had an abortion, followed by an elevation of temperature for six days. From then on menstruation was painful, and a gradually increasing swelling with pain toward the anus developed in the left inguinal region. The swelling was soft on palpation and sensitive on pressure; the liver and spleen were not palpable. There was no sensitiveness in other parts of the abdomen. Pelvic examination revealed an intraligamentary cyst, which was tight and hard and the size of a large orange, the conical fluctuating end projecting into the vagina. The right inguinal region was normal; the Douglas pouch was closed. The red blood cell count was 3,340,000, the white blood cell count 8,400, and the hemoglobin value 72%. The differential study of the white cells showed 7% eosinophils; sedimentation and coagulation rates were normal. Weinberg and Casoni tests elicited positive reactions, and surgical intervention was decided on. The abdominal cavity revealed a cystic tumor the size of a child's head, and a clear fluid was removed by trocar. Through the widened opening, the germinative membrane was pulled out and cleared of all echinococci; the cavity was swabbed with iodine and closed by capitonnage. Recovery was uneventful. Most pelvic hydatid cysts are multiple, but in this case the lesion was single. Also, most Echinococcus granulosus tumors are secondary; in this case it was primary.

BRAZIL

Biopsy During Operation.—Dr. Ernani T. Torres, head of the department of pathology of the Rio de Janeiro Hospital dos Servidores, published a report on 1,000 successive biopsies performed during operation; 1,258 specimens were examined. In this series, the pathological and clinical diagnoses coincided in 890 cases (89%); in 109 cases (10.9%) the clinical diagnosis was changed by the result of the pathological examination performed during the operation, and in many instances the surgical operation was modified according to the results of biopsy. In only one case was a definite diagnosis not possible. The patient concerned had had jaundice for the previous seven months and, recently, loss of weight, abdominal pain, and dyspnea. There was rigidity of the abdomen and evident guarding over the right hypochondrium. The clinical diagnosis was obstructive jaundice, rupture, or perforation of the biliary ducts. An exploratory laparotomy was performed, with excision of Vater's papilla. The biopsy performed during surgery demonstrated a chronic inflammatory process, but serial sections made later for more complete examination demonstrated the presence of a grade 2 adenocarcinoma (Broders), involved in abundant fibroblastic proliferation.

The pathological examination was indispensable for the exact diagnosis of the diseases of the breast in 25.6%, of the stomach in 12.6%, of the female genitalia in 9.1%, of the bones in 83.3%, of the thyroid in 9.3%, and of the mouth, tongue, throat, larynx, and frontal sinuses in 43.9%. The clinical and the pathological diagnoses coincided in the diseases of the breasts in 74.4%, of the stomach in 87.4%, of the female genitalia in 90.8%, of the bones in 16.7%, of the thyroid in 90.7%, and of the mouth, tongue, throat, larynx, and frontal sinuses in 56.1%.

Roentgenological Changes in Small Intestine in Infectious and Parasitic Diseases.—Drs. J. Rodrigues da Silva and Helio Morais, of the Rio de Janeiro Hospital dos Servidores, reported the results of their x-ray study of the small intestine in 95 hospital cases, in 74 of which there were symptoms caused, at least partially, by the following agents, alone or associated: Schistosoma mansoni (38 cases), Ascaris lumbricoides (30 cases), Trichuris trichiura (13 cases), salmonellae (10 cases), Endameba histolytica (8 cases), shigellae (6 cases), and Strongyloides stercoralis (4 cases). The rest of the patients (21) had no evidence of any parasitic or infectious disease, but their nutritional condition did not differ from that of the other patients, except for some digestive troubles that led to the diagnosis of irritable colon. The x-ray findings in the small intestine of patients having the aforementioned parasitic and infectious diseases were more frequently represented by changes in motility and tonus; hyperperistalsis and hypertonia were the most frequent findings; hypotonia and retardation of the transit were rare. In a few cases meteorism and mucus were present, but in only one case a slight abnormality of the mucosal pattern was reported in the jejunum. These roentgen changes were not characteristic with respect to each cause, contrary to what might be expected because of pathogenic differences. The only notable fact was a greater frequency of hypertonicity in patients with mansonic schistosomiasis. Silva and Morais could not confirm the presence of indisputably organic lesions already described by a few authors in cases of chronic amebiasis and shigelloses, nor could they find the changes that form the full picture of the so-called nutritional disturbances pointed out by some authors of works on mansonic schistosomiasis, intestinal parasites, shigelloses, and chronic salmonelloses.

The authors believe that it is not yet possible to interpret the exact mechanism of the roentgen changes found in the course of these parasitic and infectious diseases. They point out that the absence of roentgen changes with respect to the functions of the muscularis mucosae adds to the improbability of local factors as causative since such factors affect the muscularis mucosae more frequently than the muscularis propria. The occurrence of these same roentgen changes in patients with an irritable colon, without parasitic-infectious etiology, points to systemic factors as causative.

COLOMBIA

French Medical Mission.—Drs. Paul Harvier, clinical internist; Joseph Logre, psychiatrist; Marc Richard Klein, neurosurgeon; Antoine Remond, electroencephalographist, and Guillaume Valetta, pharmacologist, were recently invited by the members of the National University of Colombia for a scientific "good will" trip to Colombia. The aforementioned invited members of the French medical mission arrived in Bogotá on March 27, 1951. They conducted an interesting scientific and social program for two weeks in Bogotá and one week each in Medellin and Cartagena. The program included lectures in the faculties of medicine of the aforementioned cities and clinical lessons on experimental and surgical demonstrations in hospitals. Many social festivities were organized to honor the French physicians. The main purpose of the mission was to strengthen the cultural and scientific relations between members of the French and Colombian medical profession.

Phosphoric Esters of Thiamine in Diabetes Mellitus.—The clinical and experimental results of administration of phosphoric esters of thiamine obtained by Drs. Gonzalo Montes Duque and Julio Cárdenas Araque were discussed in a previous foreign letter from Colombia (*J. A. M. A.* **144:**1394 [Dec. 16] 1950). Results of this treatment in four patients with diabetes mellitus are reported in *Revista de la Sanidad Militar de Colombia* (Nos. 3 and 4, Dec. 1950). Two were treated with phosphoric esters of thiamine (cocarboxylase) and the other two with the orthophosphate of thiamine. Both substances were given orally in daily doses varying from 400 mg. to 1 gm. The patients were observed for periods varying from four days to one and one-half months. In all patients glycosuria disappeared and the blood sugar returned to normal while the patients were taking the drugs, even if they did not have the proper diet. The authors believe that the phosphoric esters of thiamine aid in the phosphorilization of dextrose in the body, facilitating the effects of hexokinase. It is also possible that the aforementioned substances facilitate the passage of dextrose through the cellular membranes to be used by the cells. In an introductory note the authors state that they were informed by the workers of a well-known American laboratory that they were unable to reproduce the experimental results obtained in rabbits in the laboratory of the faculty of medicine of Bogotá.

CORRESPONDENCE

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

To the Editor:—On behalf of the National Foundation for Infantile Paralysis and the thousands of American families who support its fight against infantile paralysis, I want to thank the fine men and women in the various branches of the medical profession who served poliomyelitis patients so willingly and competently during 1950, the second highest year of polio incidence in the history of the United States.

The doctors, nurses, physical therapists, nonprofessional and volunteer hospital personnel—all who make up the polio medical team—deserve our warm tribute. They are the ones, in the final analysis, who can give the poliomyelitis patient the thing he seeks: an opportunity to return to his family and to his community a whole person. Through his acute illness and through the long re-education and rehabilitation period needed by the severely handicapped, the polio patient needs not only the skill of each member of the medical team, but also their personal interest, the strength of their encouragement, the understanding of his own problem which only they can give him. Unstintingly they have given this service to the poliomyelitis patient.

The American people who support the National Foundation make possible its program of providing financial aid to needy polio patients and of supplementing existing polio facilities and personnel in communities hit by epidemic. We can be successful, however, only in proportion to the cooperation we receive from hospitals and the many and varied personnel needed to serve the polio patient. Without their help we would not have been able to meet the heavy onslaught of polio in these past few years.

The National Foundation for Infantile Paralysis is deeply grateful to all those whose services helped to bring to each poliomyelitis patient his full chance for recovery.

Basil O'Connor, *President,*
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MISMATCHED BLOOD TRANSFUSION

To the Editor:—In reference to the article "Successful Treatment of Mismatched Blood Transfusion," by Varney et al. (*J. A. M. A.* **145:**978 [March 31] 1951), I believe certain facts regarding hemolytic transfusion reactions should be noted. I do not believe alkalinization of the urine is of any use in the treatment of anuria due to so-called lower nephron nephrosis, nor do I believe precipitation of acid hematin is an important factor in the causation of this condition. It has been shown that overburdening of the patient with intravenous fluids, in the amount indicated in the case report, is a most frequent cause of cardiac failure, pulmonary edema, and death.

The important steps in the management of hemolytic transfusion reactions are first, relief of anoxemia by raising of the hemoglobin to normal values with transfusion of compatible whole blood or packed red blood cells; second, restriction of fluids to approximately 1,000 cc. per 24 hr. above the output; third, maintenance of electrolyte balance, the mode to be determined by carbon dioxide and serum potassium levels and electrocardiograms.

In the case reported, there was only transient oliguria with the development of little, if any, kidney damage. This, rather than the therapy used, is the explanation of the uneventful recovery.

Since the use of transfusion today is so routine, hemolytic transfusion reactions will be seen despite all precautions. Management of these reactions according to the method described in the article in question can lead only to disaster in most cases.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Employee's Right to Change Physician.—The claimant filed a proceeding to recover compensation payments for temporary total disability resulting from an industrial accident and for necessary medical and surgical expenses. From a finding in claimant's favor by the industrial commission, the employer appealed to the Supreme Court of Minnesota.

In May, 1945, while employed by the Oliver Iron Mining Company, the claimant was engaged in pulling a heavy piece of timber with a "come-along," a device with a wooden handle on each end and a pair of tongs in the center, used for dragging timber along the ground. While thus engaged, the "come-along" slipped out from the timber, and the employe fell backwards five or six feet onto an uneven pile of logs, striking his back and shoulder on the sharp edges thereof. He testified that as the result of the fall his back immediately commenced to pain all over and hurt him so much that he thought it was broken; that he lay on the timber at least 10 minutes before he could move and then got up and resumed work, but that the pain in his back continued thereafter. On the same date he reported the accident to his foreman and at the latter's direction, on the following day, the claimant went to the Shipman Hospital for examination and treatment by the company doctors. X-rays were taken, and one of the doctors, after feeling claimant's back and examining the x-ray, informed the claimant that the extent of his injuries appeared to be a bruise on his back some place around the ribs; and that the x-ray did not disclose anything further. During the next two years the claimant was in and out of the hospital five or six times, as the pain disappeared and recurred, but nothing specific was done for him. In March, 1947, still suffering pains in the lower part of his back, the claimant called upon a doctor of his own choice, Omer E. Snyker. Dr. Snyker immediately was impressed with the possibility of a spinal injury. He strapped the claimant's back and advised him of its proper use in working and lifting. The doctor testified that his later physical findings, which disclosed radiation of pain in employee's legs and nerve muscles, confirmed his earlier diagnosis of a possible spinal injury. He asked the claimant if he had sustained any accident, and was told of the fall which occurred on May 25, 1945. Dr. Snyker then recommended a spinogram x-ray and referred the claimant to Dr. Smith of St. Paul for such purpose. Before acting on his advice, however, the claimant endeavored to obtain relief from a local chiropractor. Unsuccessful in this, he returned to Dr. Snyker and in August, 1948, journeyed to St. Paul for the spinogram x-ray recommended by the latter. This was taken at Miller Hospital under the direction of Dr. Smith, who also made a physical examination of the claimant. Based on the spinogram and the physical examination, Dr. Smith concluded that the claimant was suffering from a herniated intravertebral disk pressing directly on the corresponding lumbar nerve and that the disk had already ruptured. On Aug. 27, 1948, Dr. Smith performed an operation on the claimant's back, removing segments of the perforated disk therefrom, following which claimant made an uneventful recovery. Dr. Smith testified that the fall which the claimant sustained in May, 1945, was, in his opinion, the cause of the ruptured disk for which he was treated and operated upon. Dr. Snyker testified likewise. Dr. Smith gave further testimony that many people experience disk injuries of this kind from a fall such as was disclosed by claimant; that ordinary X-rays are usually negative insofar as this type of injury is concerned, which was the reason for requiring a spinogram x-ray; that when the pain is due to a disk it may be temporarily relieved when the disk slips back into normal condition; that when the disk cannot resume its normal position the pain becomes constant; and that sometimes it is a matter of months before the disk gets out of position far enough to cause pressure sufficient to extend the pain to the leg of the injured person.

We believe, said the Supreme Court, that the evidence is amply sufficient to sustain the findings of the industrial commission that the claimant's injuries were due to the fall. It is the employer's contention, however, that the claimant was not authorized to change physicians without the consent of the industrial commission, and that hence it is not liable for the additional expenses thus incurred by the employee in effecting his cure.

The Workmen's Compensation Act provides: "The employer shall furnish such medical, surgical, and hospital treatment, . . . as may reasonably be required at the time of the injury, and during the disability, to cure and relieve from the effects of the injury. In case of his inability or refusal seasonably to do so the employer shall be liable for the reasonable expense incurred by or on behalf of the employee in providing the same. . . . The commission may at any time, upon the request of an employee or employer, order a change of physicians and designate a physician suggested by the injured employee or by the commission itself, and in such case the expense thereof shall be borne by the employer. . . ."

The statute thus indicates two separate situations in which a change of physicians furnished an employee under the act is permitted at the expense of the employer, pointed out the Supreme Court. In the first situation, the court continued, the statute does not specify that as a prerequisite to such a change an order therefore be procured from the commission. The inability or refusal of an employer or his physician to furnish the needed medical, surgical, or hospital treatment certainly would justify an employee in making an immediate change without jeopardizing his health or condition by even the slight delay involved in awaiting authorization therefor by the commission. In the second situation the statute contemplates that at the request of either employer or employee a change of physicians may be authorized by the commission in its discretion, even though the physicians furnished by the employer are providing proper medical treatment, since other factors, such as the convenience of parties, the location of required hospital facilities or medical equipment, the need for further specialized treatment, or many like considerations, may be deemed sufficient to authorize a change.

In a prior Minnesota case it was held, where physicians furnished by the employer for a period of more than 16 months "had fumbled and delayed the discovery of relator's real needs and requirements and had failed to furnish the professional aid really owed to realtor," that "the statutory equivalent of 'inability or refusal seasonably' to furnish and provide that which the statute requires" had been established. Based thereon the Supreme Court upheld the employe's right to change physicians at his employer's expense, even though the commission had failed to grant or act upon his request for such procedure.

In the present case, said the Supreme Court, the evidence establishing inability or refusal to furnish proper diagnosis and adequate treatment of the claimant's disability is even more substantial than in the prior case. Here, notwithstanding repeated visits by the claimant to his employer's physicians for a period of over 21 months, no proper diagnosis of his disability had been made and no adequate medical or surgical treatment provided therefor. The evidence established that a spinogram x-ray is required for proper diagnosis of a disk rupture, but no spinogram was suggested by employer's physicians. As far as the record indicates, there was never even a suspicion on the part of any of them that a disk rupture was the basis of claimant's disability. Dr. Snyker, on the other hand, on claimant's first call, suspected a spinal injury, while the diagnosis subsequently made by Dr. Smith after the spinogram x-ray quickly established claimant's need for immediate surgery, which was furnished and which shortly effected his cure.

We hold, the court concluded, that the evidence outlined was sufficient to establish the inability and refusal of employer's physicians to furnish the required treatment and to justify the claimant in seeking further medical attention from physicians and surgeons of his own choice; and that under the circumstances an order of the commission authorizing the change was not required. Accordingly the judgment in favor of the claimant was affirmed.—*Mattila v. Oliver Mining Co., 46 N.W. (2d) 82 (Minnesota 1951).*

MEDICAL LITERATURE ABSTRACTS

AMERICAN

A.M.A. Arch. Internal Medicine, Chicago

87:329-476 (March) 1951

*Titrated, Regularly Spaced Radioactive Phosphorus or Spray Roentgen Therapy of Leukemias. E. E. Osgood.—p. 329.

*Studies on Antibiotic Synergism and Antagonism: *Interference of Chloramphenicol with Action of Penicillin.* E. Jawetz, J. B. Gunnison, R. S. Speck and V. R. Coleman.—p. 349.

Antistreptolysin O Response Following Hemolytic Streptococcus Infection in Early Childhood. L. A. Rantz, M. Maroney and J. M. Di Caprio. —p. 360.

Multilobar Pulmonary Venous Obstruction with Pulmonary Hypertension: "Protective" Arterial Lesions in Involved Lobes. J. E. Edwards and H. B. Burchell.—p. 372.

*Intermittent Peritoneal Lavage in Nephrectomized Dogs and Its Application to the Human Being. A. Grollman, L. B. Turner and J. A. McLean.—p. 379.

Diffuse Calcification of Pancreas. B. J. Peters, J. M. Lubitz and M. C. F. Lindert.—p. 391.

Syphilis: Review of Recent Literature. H. Beerman, L. Nicholas, W. T. Ford and M. S. Buerk.—p. 424.

Irradiation Therapy of Leukemias.—Osgood believes that the use of massive doses of ionizing radiation in the treatment of leukemia is irrational, since such doses do not kill all leukemic cells and do have many undesirable side effects. He favors the use of multiple small doses at regular intervals to inhibit leukemic cell growth without discomfort to the patient, and he fells that every leukemic cell must be irradiated at once. These concepts led to the development of the technique of "titrated," regularly spaced, total body irradiation by roentgen spray or radioactive phosphorous therapy. The roentgen therapy is given in the following manner: 200 to 400 kv.; no cone, 0.5 mm. Cu and 1 mm. Al filtration; 80-100 cm. target skin distance; two ports for adults. The initial dose is 10 to 20 r. The maximum subsequent dose is 25 r given at one to two week intervals for about six weeks. Subsequently 10 r per month is given for maintenance of control. Dosage is kept, if possible, below the level that produces anemia, bleeding, weight loss or any interference with the patient's daily routine. When P^{32} is used, the initial dose is 20 to 40 μc. per kilogram of body weight and subsequent doses and time intervals, as with roentgen therapy, are determined by the patient's response, which may vary greatly. Since the half life of P^{32} is eight days, dosage effects are cumulative if the interval is much less than six weeks. In the author's series of 58 patients (20 with chronic granulocytic leukemia and 38 with chronic lymphocytic leukemia) treated between 1941 and 1949 there are 32 still living. The mean duration of life from the onset of the disease is 3.6 years for the total series. While this is not significantly greater than the estimated 3.5 years natural life expectancy of patients with chronic leukemia, it is noteworthly that over 80 per cent of the total 208 years of leukemic life in this series was spent in essentially normal living.

Antibiotic Synergism and Antagonism.—Experiments in vitro with both gram-positive (Streptococcus) and gram-negative (Klebsiella) organisms and in vivo with streptococci in mice have demonstrated that chloramphenicol interferes with the bactericidal or therapeutic effect of penicillin. The antagonism extends over wide ranges of concentrations of the drugs, but these ranges are determined by the degree of antibacterial activity of each drug; for example, low, nonbacteriostatic concentrations of chloramphenicol do not inhibit the action of penicillin against Str. pyogenes, whereas high bacteriostatic concentrations of chloramphenicol do not interfere with the weaker action of penicillin on K. pneumoniae. These findings suggest that the two drugs do not interact in a chemical or physical way. This impression is confirmed by the observation that the antagonism occurs only if chloramphenicol is given prior to or simultaneously with penicillin. Apparently, chloramphenicol interferes only with the early bactericidal effect of penicillin, probably by modifying the characteristics of the bacterial population so as to make it less susceptible to penicillin. Drugs synergistic with penicillin, e. g., streptomycin or bacitracin, can overcome the antagonism between chloramphenicol and penicillin.

Intermittent Peritoneal Lavage.—Grollman and co-workers state that intermittent peritoneal lavage is superior to other artificial methods for removing excess waste products from the blood or adjusting the water, electrolyte, and acid base balance of the body. It is superior to the artificial kidney or exchange transfusions in that it requires no complex apparatus, cannulation of blood vessels, or large supplies of blood and it is less expensive and less dangerous. It also avoids the complex apparatus, multiple incisions, and constant attention required for constant peritoneal perfusion, and it may prove more effective. Intermittent peritoneal lavage has prolonged the life of nephrectomized dogs in good condition for 30 to 69 days, several times longer than by any other method, and has produced striking clinical improvement in three of five uremic patients. In man 2 or 3 liters of a special perfusing fluid are introduced into the peritoneal cavity through an ordinary paracentesis trocbar or small plastic tube. The fluid is left in the peritoneum for two hours, then siphoned off through the same tube. This is repeated every two hours. Alteration of the composition and tonicity of the perfusing fluid alters the composition of the blood and the volume of the interstitial fluid. The addition of 25,000 units of sodium penicillin and 25 mg. of streptomycin to each liter of solution and the use of sterile technique prevents the development of peritonitis. In the authors' experiments there was no evidence of peritoneal irritation or decrease in the efficiency of the peritoneum as a semipermeable membrane many weeks after the procedure had been performed. The procedure may find application in conditions such as profound disturbances of water and electrolyte metabolism, pulmonary edema, and congestive failure not responding to usual therapeutic methods, and acute hypertensive encephalopathy.

A.M.A. Arch. *Otolaryngology*, Chicago

53:243-352 (March) 1951

*Study of Long Term Hearing Results in Fenestration Surgery. L. E. Adin Jr. and G. E. Shambaugh Jr.—p. 243.

Physiological Principles in Rhinoplasty. S. Fomon, W. Y. Sayad, A. Schattner and H. Neivert.—p. 256.

Factors Influencing Late Secondary Hemorrhage Following Tonsilloadenoidectomy. W. K. Wright and L. G. Pray.—p. 277.

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Lymph Vessels in Wall of Endolymphatic Sac. J. Arnvig.—p. 290.

Blastomycosis of External Auditory Canal (Blastomyces Dermatitidis). A. P. Keller Jr. and T. O. W. Meissner.—p. 296.

Sarcoma of Larynx. J. Lachmann.—p. 299.

Action of Dimenhydrinate (Dramamine) and Other Drugs on Vestibular Function. L. B. Gutner, W. Gould and R. C. Batterman.—p. 308.

Sedimentation of Aerosols in Interior of Sinuses. P. D. Ladouce. —p. 316.

Chronic Progressive Deafness and Otosclerosis. A. L. Juers, E. L. Derlacki and G. E. Shambaugh Jr.—p. 319.

Long-Term Results of Fenestration Surgery.—There has been some controversy about the permanency of the hearing improvement following the fenestration operation for otosclerosis and about the effect of the operation on the progression of the

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Titles marked with an asterisk (*) are abstracted.

disease. The authors followed 390 patients for five to 10 years after this operation. The hearing of 70% of the patients showed significant, sustained improvement; 20% lost some of their initial gain but retained a usable level of hearing; 5% had no hearing improvement, and 5% were considered to have bony closures. The number of probable bony closures was reduced to 0.6% during the last two years by the use of most of the features of the "improved Northwestern University technique." Symptoms of inner ear disturbance suggesting labrynthine hydrops were noted in more than 10% of the patients postoperatively. Pregnancy following the fenestration operation did not seem to result in further cochlear nerve damage. Progressive cochlear nerve degeneration was noted much more frequently in ears not operated on than in ears operated on. The operation thus affords at least partial protection against future cochlear nerve degeneration. The mechanism of this protection is not known.

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Evaluation of Benzoyl Glucuronate Excretion Test (Snapper) for Liver Dysfunction. J. G. Sharnoff, M. Budnick and G. Jakab.—p. 234.
Resistance of Mycobacterium Tuberculosis to Chemotherapeutic Agents. W. H. Bailey.—p. 241.

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Prolapse of Umbilical Cord: Analysis of 116 Cases at Cincinnati General Hospital. K. R. Brandeberry and R. W. Kistner.—p. 356.
Cardiac Patient in Pregnancy: Five-Year Survey. L. H. Douglass and L. L. Hoopes.—p. 373.
True Toxemia of Pregnancy Occurring Before Third Trimester: Report of Three Cases and Review of Literature. T. W. McElin, J. E. Faber and L. M. Randall.—p. 379.
Validity of Vaginal Smear Diagnosis in Carcinoma in Situ of Cervix: Report of 60 Cases. R. R. Achenbach, R. E. Johnstone and A. T. Hertig.—p. 385.
Cerebral Effects of Papaverine Hydrochloride in Toxemia of Pregnancy. M. L. McCall, T. V. Finch and H. W. Taylor.—p. 393.
Analysis of Premature Delivery of Liveborn Infants. P. I. Bookstaver. —p. 399.
Morbidity After Total Abdominal Hysterectomy. J. H. Pratt, M. J. Lee Jr., W. F. Hasskarl Jr. and others.—p. 407.
Studies on Prematurity: III. Influence of Toxemia of Pregnancy on Fatality Rate. W. Pomerance and M. Steiner.—p. 436.
Viability of Cast-off Menstrual Endometrium. W. C. Keettel and R. J. Stein.—p. 440.

Posterior Colpotomy in Ectopic Pregnancy.—While in some patients a fairly definite diagnosis of ectopic pregnancy can be made from the history, physical examination, and laboratory observations, in most instances the presence of an ectopic pregnancy must be confirmed by surgical inspection of the site of pregnancy. Draa and Baum stress the value and safety of the posterior colpotomy incision. If insufficient endometrial scraping was obtained for diagnosis, the posterior cul de sac was opened and inspected for fresh or old blood. Then the tubes, ovaries, and uterus were inspected. If the ectopic pregnancy was an early one, it was usually removed. Occasionally, fibrinous adhesions would hold an early ectopic pregnancy against neighboring structures, but these often could be freed by gentle finger dissection. The diagnosis was established for 149 of the 224 cases of ectopic pregnancy by the use of the posterior colpotomy incision and in 77 of these the pregnancy could also be removed through the incision. Laparotomy was required 72 times after the posterior colpotomy incision, the ectopic pregnancies in this group being of longer duration. The posterior colpotomy incision will aid in diagnosis and prevent delay in treatment of extrauterine pregnancy and will also prevent unnecessary laparotomies. Although it is a simple, safe procedure, it has been used by few surgeons and has been condemned because of the danger of introducing infection into the peritoneal cavity. This has not been the experience of these authors.

Incidence of Ectopic Pregnancy.—In 19 hospitals within the population registration area of the city of Baltimore, the racial incidence of ectopic pregnancy in relation to total births during five years (1944-1948) was determined. The unreliability of individual hospital statistics was shown in variations of ratios of ectopic pregnancies to total births in white patients from 1: 111 to 1: 269 and in Negroes from 1: 31 to 1: 862. There was one ectopic pregnancy to 177 total births in white women, as compared to one ectopic pregnancy to 120 total births in Negro women. The mortality from ectopic pregnancy during the five year period was 0.7% for white patients and 3.9% for Negroes. In view of the high incidence of gonorrheal infection in Negro women, the conclusions would seem inescapable that the differential in racial incidence of ectopic pregnancy is attributable to a higher incidence of pelvic inflammatory disease in Negroes. If this is true, the more efficacious methods of treating gonorrheal infection now in widespread use may well lead to a reduction in the incidence of this frequent and grave complication of pregnancy.

American Journal of Ophthalmology, Chicago

34:169-338 (Feb.) (Part I) 1951

*Visual Problems of Supersonic Speeds. V. A. Byrnes.—p. 169.
Phlyctenular Keratoconjunctivitis Among Alaskan Natives. M. H. Fritz, P. Thygeson and D. G. Durham.—p. 177.
Psychogenic Changes in Field of Vision: Associated with Tumors of Frontal Lobe of Brain. L. J. Gogela and C. W. Rucker.—p. 185.
Ocular Complications of Erythema Exudativum Multiforme. J. W. Duggan and S. R. Gaines.—p. 189.
Prescribing Prisms for Hyperphoria. A. Posner.—p. 197.
Verhoeff's Theory of Normal Binocular Vision: Elementary Introduction. Z. W. Colson.—p. 200.
Sulfonamides in Treatment of Trachoma. S. Kamel.—p. 205.
Position of Risley Prism in Maddox-Rod Test. E. L. Green and R. G. Scobee.—p. 211.
*Chorionepithelioma of Choroid: Metastastic from Tumor in Testicle. M. M. Kulvin.—p. 217.
Specific Reading Disability: Problem in Integration and Adaptation. E. M. Cole.—p. 226.
Generalized Xanthomatosis with Corneal Involvement: Report of Case. B. Davidson, C. G. Pilz and R. W. Zeller.—p. 233.
Anomalous Retinal Correspondence: Its Essence and Its Significance in Diagnosis and Treatment. H. M. Burian.—p. 237.
Torsional Eye Movements. R. S. Hewitt.—p. 253.
Oblique Muscle Surgery from Anatomic Viewpoint. W. H. Fink.—p. 261.

Visual Problems of Supersonic Speeds.—Factors relating to the use of the eyes in the flying of aircraft at supersonic speeds are briefly outlined. The following problems are discussed: The optical effect of the shock wave and the effect of slanting surfaces on incident light; the effects of vibration on the eye and the effect of the delay in visual perception; the restricting visual effect of acceleration on the maneuverability of supersonic craft, and possible effects of temperature and high speed escapes on the eyes.

Chorionepithelioma of Choroid.—The occurrence of chorionepithelioma in the testicle is rare. Metastasis of such a tumor to the choroid is exceedingly rare. The case here presented concerns a man, aged 22, who, following removal of a testicle in which chorionepithelioma was found, received a course of irradiation to the groin. He was symptom free until almost one year later, when pain developed in the left upper quadrant of the abdomen. An exploratory operation revealed metastatic nodules in the liver. Dimness of vision developed 10 days later. The patient's course was downhill, and he died two months after development of eye symptoms. Histological studies during necropsy corroborated the diagnosis of chorionepithelioma in the eye metastatic from the testicle. Only four other cases of this type in males have been presented in the literature.

American Journal of Surgery, New York

81:147-258 (Feb.) 1951

- *Pseudocysts of Pancreas. K. B. Brilhart and J. T. Priestley.—p. 151.
- Kümmell's Disease. H. H. Steel.—p. 161.
- Use of Prophylactic Penicillin in Obstetrics. L. T. Dorgan, H. S. McGaughey and H. G. Giddens.—p. 168.
- Immediate Untoward Reactions to Spinal Anesthesia. C. S. Dwyer.—p. 172.
- Perforation of Gallbladder. A. G. Fletcher Jr. and I. S. Ravdin.—p. 178.
- New Approach for Subtrochanteric and Upper Femoral Shaft Fractures Using Dual Flange Nail Plate: Preliminary Report. E. L. Jewett.—p. 186.
- Experiences with Postoperative Temperatures Above 108 F.: Use of Hypertonic Glucoses. J. L. Mangiardi.—p. 189.
- Carcinoma of Breast: Review of 206 Cases. R. L. Sanders and R. M. Pool.—p. 193.
- Partial Gastrectomy for Peptic Ulcer. A. H. Levy.—p. 198.
- *Cystadenoma of Pancreas. A. A. Mozan.—p. 204.
- End Result Study of McMurray Osteotomy for Acute Fractures of Femoral Neck. O. C. Hudson, W. P. Bartels and C. F. Freese.—p. 215.
- Cancer of Stomach. S. E. Lawton, C. E. Fildes and L. Seidman.—p. 221.
- Thumb Fractures and Dislocations: New Method of Treatment. D. Goldberg.—p. 227.

Pseudocysts of Pancreas.—Forty-four patients with pseudocyst of the pancreas were treated surgically at the Mayo Clinic during the years 1933 to 1947 inclusive. These cysts, which contain a semifluid material, are found adjacent to or occasionally within the pancreas. They may result from inflammation or trauma and do not have a lining epithelium, in contrast to a true retention type of cyst. Pseudocysts are one of the commonest types of cystic lesions of the pancreas. A patient with a cyst of this type has a history suggestive of recurring pancreatitis and has a rounded mass in the upper abdomen. The mass may change in size or at times disappear entirely. In this series incision and drainage was done in 19 of the 44 cases, incision and marsupialization in 12, complete excision in five, excision of cyst and partial pancreatectomy in three, partial removal of cyst in one, and no surgical treatment of cyst in four cases. At the Mayo Clinic it has been observed that unless unusually small, a pseudocyst does not lend itself to total excision, as it does not have the wall of a true cyst, is adherent to all surrounding structures, and may require an extensive operation for total extirpation. If complete removal were attempted in all cases, the operative mortality would be excessive. Internal drainage by anastomosis of the cyst to the stomach, gallbladder, or jejunum has been reported, but in most cases external drainage of adequate duration, preferably by marsupialization, if the cyst is large, appears to be the treatment of choice. Recurrence can generally be prevented. The danger of serious infection is minimal with irrigation and antibiotic therapy. Probably the main objection to this type of treatment is the prolonged care necessary while the cystic cavity is gradually being obliterated.

Cystadenoma of Pancreas.—A case is reported in which a benign cystadenoma of the pancreas was completely extirpated, and 56 cases collected from the literature are reviewed. Little is known of the etiology of pancreatic cystadenoma, and it occurs rarely. Cystadenomas are rounded, neoplastic masses with a coarsely lobulated surface. They vary from the size of a cherry to tumors as large as a football. They usually have a semitranslucent, fibrouslike, tense capsule. On palpation, they exhibit a tense, hard, nodular consistency. Their gross appearance may be likened to a mass of glass marbles set in a dense, rubbery substance. Sectioning reveals that the cystadenoma is usually multilocular, whereas the pseudocyst, which is the commonest among the pancreatic cysts, is usually unilocular or bilocular. Cystadenoma is a benign tumor, but its histopathological differentiation from cystadenoma carcinoma and multilocular cysts may at times be difficult. Clinically, cystadenoma is characterized by an insidious, slow growth. Later, a palpable tumefaction, abdominal pain in the upper epigastrium, dyspeptic symptoms and weight loss appear. Roentgen examination (with use of lateral plate technique) has proved a most valuable adjunct in diagnosis. Eight of the 56 cases had associated diabetes mellitus. The ratio of females to males was 7: 1. Complete surgical extirpation is the method of choice in the opinion of most authorities. The surgical mortality is about 13.6%. A plea is made to surgeons to keep in mind routine examination of the pancreas by palpation in the course of operations on the gallbladder, common bile duct, stomach, and duodenum. This procedure will afford him the opportunity to recognize the normal feel of the pancreas and thereby insure the disclosure of pathological disorders that would otherwise remain hidden.

Annals of Allergy, Minneapolis

9:1-132 (Jan.-Feb.) 1951. Partial Index

- *Adrenocorticotropic Hormone (ACTH): Its Effects in Atopic Dermatitis. T. G. Randolph and J. P. Rollins.—p. 1.
- Therapeutic Effects of Antihistadine Decarboxylase and Antihistamine Combination. J. Schultz.—p. 15.
- Treatment of Bronchial Asthma with Pregnenolone Acetate. A. O. Lima.—p. 31.
- Use of Antihistaminic Drugs in Treatment of Epidermophytosis of Feet and Epidermophytids: Preliminary Report. E. Austin.—p. 50.
- Evaluation of Solid ("Dust") Aerosols as Therapeutic Agents. M. S. Segal, H. J. Rubitsky, E. Bresnick and L. Levinson.—p. 53.
- Role of Questionnaire in Diagnosis of Allergic Conditions. E. A. Brown.—p. 60.
- Toxic Cutaneous Manifestations of Para-Aminobenzoic Acid Derivatives. G. J. Greenwood.—p. 72.
- Benadryl—Its Uses in Narcotic Withdrawal Syndrome and in Other Conditions. M. Vaisberg.—p. 74.
- Injections of Massive Doses of Pollen Extract at Three-Week Intervals and Their Effect on Skin-Test Sensitivity. H. I. Shahon, A. H. Lappin, V. Agranat and others.—p. 77.
- Skeptophylactic Smallpox Vaccination in Children: Immunity Without Morbidity. J. G. Little.—p. 85.
- Dermatitis Due to Para-Aminosalicylic Acid. E. J. Luippold.—p. 97.
- Skin Tests with Mixtures of Bacterial Antigens and Antihistamines. M. R. Lichtenstein.—p. 99.
- Symptoms of Hay Fever Caused by Algae: II. Microcysts, Another Form of Algae Producing Allergenic Reactions. H. A. Heise.—p. 100.
- Effects of Antihistaminic Drugs on Antigen-Antibody Reaction During Anaphylactic Shock. V. Traina.—p. 102.
- Pollinosis with Intense Pruritus Vulva. R. M. Mulligan.—p. 104.
- Hay Fever: Review of Literature of 1949. M. A. Kaplan and N. J. Ehrlich.—p. 105.

Adrenocorticotropic Hormone in Atopic Dermatitis.—The beneficial effects of pituitary adrenocorticotropic hormone (ACTH) in bronchial asthma, ragweed hay fever, and other allergic disturbances prompted a study of its effect in atopic dermatitis. Patients were selected on the basis of typical acute dermatitis that had failed to respond completely to specific allergic management. Aggravation of the dermatitis could be induced following the ingestion of one or more known allergenic foods. Three patients were hospitalized, and acute exacerbations of their dermatitis were induced by the ingestion of foods to which they were known to be sensitized. Although allergenic foods were continued in their diets, each showed rapid clearing of the lesions of atopic dermatitis during short courses of pituitary adrenocorticotropic hormone therapy. This degree of improvement lasted four or five days following the cessation of treatment with the hormone in two of the patients in whom allergenic foods were continued in the diet. Another patient was managed similarly, except that allergenic foods were withdrawn from the diet coincident with the cessation of hormone therapy; his clinical improvement lasted 10 days. The fourth patient, of whom relatively less was known from the standpoint of specific food allergy, was treated with pituitary adrenocorticotropic hormone for three weeks; during the latter part of this interval the dosage of the hormone was gradually reduced. Although his diet was constant, dermatitis recurred two days after the cessation of therapy, but the recurrence was less abrupt and pruritus was less severe during the first 10 days of gradually recurring eczema. Each patient had a recurrence of dermatitis following the cessation of hormone therapy, at least as severe and in some instances more acute than that present for several weeks prior to the institution of treatment. This degree of severity persisted from one to three weeks and then reverted to the previous status. In general, the results of treatment with pituitary adrenocorticotropic hormone in atopic dermatitis are not as good as in hay fever and bronchial asthma.

Archives of Physical Medicine, Chicago

32:71-120 (Feb.) 1951

- •Experimental Study of Effects of Ultrasonic Energy on Lower Part of Spinal Cord and Peripheral Nerves. T. P. Anderson, K. G. Wakim, J. F. Herrick and others.—p. 71.
- Head Traction Attached to Corset in Care of Scoliosis. R. L. Bennett. —p. 84.
- Fitting and Alinement of Braces for Lower Extremities. O. F. von Werssowetz.—p. 90.
- Use and Abuse of Physical Medicine in Treatment of Peripheral Vascular Diseases. A. G. Prandoni.—p. 100.

Effects of Ultrasonic Energy on Spinal Cord and Nerves.—The question of the effects of ultrasonic energy on the nervous system has arisen because this type of energy has been used for disorders, such as sciatica and lumbago, that involve the nervous system. Paralysis was observed in laboratory animals after single applications of ultrasonic energy to the midline of the back given in practically the same manner as the recommended therapeutic application in cases of lumbago and sciatica. In further experiments on dogs and rats, with use of a sonostat, which generates sound vibrations at a frequency of 800,000 cycles per second, it was found that ultrasonic energy had much greater destructive effect on the spinal cord than on the sciatic nerve. The theory that there is an effect of ultrasonic energy on nerve tissue other than its heat effect is supported by two findings: (1) the occurrence of marked destruction of the cord when temperatures recorded in the spinal canal were as low as 42 to 43 C. after application of ultrasonic energy and (2) the occurrence of much less regular myelin degeneration in sciatic nerves with action potential completely blocked by ultrasonic energy than in those with action potential similarly blocked by direct heating. Whether ultrasonic energy can be safely used for therapy cannot be determined from this study. Perhaps a safe procedure for the therapeutic application of ultrasonic energy can be determined by further studies, if the moving technique of application (or pulsed energy) and smaller doses are used.

California Medicine, San Francisco

74:81-150 (Feb.) 1951

- Treatment of Difficult and Involved Colles' Fracture. F. J. Cox and A. W. Meier.—p. 81.
- Immunization with Influenza Virus Vaccines. S. S. Woolington.—p. 87.
- Concept of Continuation Education in Medicine. F. D. Murphy.—p. 89.
- Hysterectomy—Total or Subtotal for Benign Lesions. D. A. Dallis. —p. 92.
- Use of Antithyroid Drugs. D. W. Petit.—p. 99.
- Nutritional Status of the Aging: Public Health Aspects. H. D. Chope and S. Dray.—p. 105.
- Refrigeration Treatment of Chronic Osteomyelitis. R. Bingham.—p. 108.
- Review of Literature on Etiology of Hodgkin's Disease. W. L. Bostick. —p. 111.
- Common Errors in Management of Acute Myocardial Infarction: Critical Analysis of 58 Fatal Cases. D. S. Rubsamen.—p. 115.
- Use of Benzidine Test for Occult Blood in Abnormal Mammary Secretions. C. E. Rees.—p. 117.
- Establishment and Operation of Nerve Block Clinic: One Year's Experience at the Los Angeles County Hospital. J. S. Denson.—p. 118.
- Coccidioidomycosis as Complication of Pregnancy. J. E. Vaughan and H. Ramirez.—p. 121.
- Mephenesin as Relaxing Agent in Treatment of Tetanus: Clinical Experience in 12 Cases. H. E. Godman.—p. 126.
- Dental Caries. G. O. Boucher.—p. 128.

Delaware State Medical Journal, Wilmington

23:27-52 (Feb.) 1951

- Achalasia Treated by Transabdominal Esophagogastrostomy: Case Report. H. S. Rafal and J. J. Selinkoff.—p. 27.
- Esophagocardiomyotomy for Intractable Achalasia. H. R. Hawthorne and H. C. Davis.—p. 32.
- •Effects of 17-Ketosteroid Deficiency and Male Hormone Therapy in Rheumatic Fever and Arthritis. C. W. Dunn.—p. 36.
- Use of Dimethylyn in Management of Certain Symptoms of Menopause. G. J. Boines.—p. 41.

17-Ketosteroid Deficiency and Male Hormone Therapy in Rheumatic Fever and Arthritis.—Dunn called attention to the role of endocrine deficiency and the value of endocrine therapy in arthritis as early as 1940. In 1950 he performed routine endocrine examination on 17 boys (6 to 14 years of age) who were receiving convalescent care for rheumatic disease and found that three-fourths of them showed signs of severe hypogonadism. A group of 17 adult males who had arthritis showed an 88% incidence of low 17-ketosteroid content in their urine. A group of 30 women with arthritis showed a 66% incidence of reduced 17-ketosteroid content in their urine. Of two male children with rheumatic fever and arthritis, one was given male hormone therapy, and his recovery was dramatic; in the control patient, the illness ran the usual course. Both had been given routine antirheumatic therapy in the form of antibiotics, ascorbic acid, and salicylates. The 17-ketosteroid deficiency seems to produce an inferior constitutional environment which permits the unknown etiologic factor of rheumatic fever to invade the impaired collagen tissue structures in the fibromuscular, articular, and para-articular structures. Therapy with 17-ketosteroids in the form of testosterone propionate and methyl testosterone is indicated in the treatment of rheumatic fever and arthritis whenever a 17-ketosteroid deficiency is apparent. Hypogonadal male children should receive male hormone therapy earlier and in larger dosage. There seems to be no contraindication to the use of male hormone therapy in females with rheumatic fever. The beneficial effects of cortisone and pituitary adrenocorticotropic hormone in rheumatic fever and rheumatoid arthritis illustrate the value of ketosteroid therapy in arthritis.

Endocrinology, Springfield, Ill.

48:125-244 (Feb.) 1951. **Partial Index**

- Inhibition of Gonadotrophic Hormone Secretion by Physiological Doses of Estrogen. W. W. Byrnes and R. K. Meyer.—p. 133.
- Effect of Steroids and Lactone Derivatives on Hypophyseal Gonadotrophin Content. G. E. Mortimore, C. A. Paulsen and C. G. Heller. —p. 143.
- Studies with Labelled Anterior Pituitary Preparations: Adrenocorticotropin. M. Sonenberg, A. S. Keston and W. L. Money.—p. 148.
- Influence of Thyroid on Cerebral Metabolism. J. F. Fazeks, F. B. Graves and R. W. Alman.—p. 169.
- Some Observations on Physiologic Activity of Delta 4,6-Dehydrocortisone (Diene). G. M. Higgins, K. A. Woods and E. C. Kendall.—p. 175.
- Antithyroid Activity of 5-Halogeno-2-Thiouracils. H. W. Barrett, K. X. Gassner and K. Dittmer.—p. 189.
- Influence of Sex and of Testosterone Upon Fatty Liver Due to Ethionine. E. Farber, D. Koch-Weser and H. Popper.—p. 205.
- Effect of Cortisone and Adrenocorticotrophic Hormone of Pituitary on Blood Pressure in Experimental Renal Hypertension. A. Grollman and A. Konnerth.—p. 213.
- Comparison of Urinary Estrogens Determined Biologically and of "Estroids" Determined Chemically. F. D. Humm, P. L. Munson and W. T. Salter.—p. 225.

Iowa State Medical Society Journal, Des Moines

41:37-70 (Feb.) 1951

- Primary Cancer of Lung. T. J. Kinsella.—p. 37.
- Acute Small Bowel Obstruction. B. C. Barnes.—p. 43.
- Peritoneoscopy. P. G. Keil and S. N. Landis.—p. 48.
- Wills for Physicians. W. F. Waugh.—p. 50.

41:71-108 (March) 1951

- Metabolic and Nutritional Studies in the Adolescent. J. A. Johnston. —p. 79.
- •Folic Acid Antagonists in Treatment of Leukemia. A. B. Hendricks and W. M. Fowler.—p. 84.
- Management of Lacrimal Duct Obstruction. C. A. Noe.—p. 86.
- Stenosis of Pulmonary Conus Without Associated Defects: Case Report. E. O. Theilen and L. E. January.—p. 88.

Folic Acid Antagonists in Leukemia.—Ten patients with acute leukemia were subjected to a therapeutic trial with two of the folic acid antagonists, namely, 4-aminopteroylglutamic acid (aminopterin) and amethopterin (4-amino-N^{10}-methyl folic acid). The daily dose of aminopterin varied from 0.5 to 2 mg. with a total dose of 6 to 11 mg. A daily dose of 5 mg. of amethopterin was given for six to 11 days. Results were satisfactory but temporary in three patients, fair in three, and poor in four. The drugs appeared to be most effective in subacute lymphocytic leukemia and ineffective in the acute fulminating type. They produce only temporary remissions and do not cure leukemia. Folic acid antagonists are toxic to the patient, and daily leukocyte counts, platelet counts, and frequent checks of the bleeding and clotting time are desirable. Manifestations of toxicity, such as stomatitis, bleeding from the bowel, and thrombopenia necessitated discontinuance of the folic acid antagonists in three patients.

Journal of Gerontology, St. Louis

6:1-104 (Jan.) 1951. Partial Index

Studies in Experimental Atherosclerosis: I. Preparation of Injectable Cholesterol Sols. O. J. Pollak and B. Wadler.—p. 1.
Serum Alkaline Phosphatase in Middle and Old Age. L. C. Clark Jr., E. I. Beck and N. W. Shock.—p. 7.
Vitamin Studies in Middle-Aged and Old Individuals: VI. Tocopherol Plasma Concentrations. M. Chieffi and J. E. Kirk.—p. 17.
Nitrogen Balance Studies in Four Elderly Men. W. B. Kountz, L. Hofstatter and P. G. Ackermann.—p. 20.

Journal Lab. and Clinical Medicine, St. Louis

37:331-498 (March) 1951

Induced Pregnancy in Mammalian Host Following Severe Total Body X-Irradiation. P. E. Rekers.—p. 331.
Blood Volume Determination: Comparison of T-1824 and P^{32} Labeled Red Cell Methods. L. R. Wasserman, Tse-Fei Yoh and I. A. Rashkoff.—p. 342.
Method for Continuous Recording of Evans Blue Dye Curves in Arterial Blood, and Its Application to Diagnosis of Cardiovascular Abnormalities. J. W. Nicholson III, H. B. Burchell and E. H. Wood.—p. 353.
*Comparative Effects of Ether, Alcohol, Tetraethylammonium, and Priscoline in Producing Vasodilatation in Peripheral Vascular Conditions. W. J. Reedy.—p. 365.
Precipitation of Cerebrospinal Fluid Globulin by Zinc Sulfate. A. M. Donovan, J. M. Foley and W. C. Moloney.—p. 374.
Primary Atypical Pneumonia with High Titer of Cold Hemagglutinins, Hemolytic Anemia, and False Positive Donath-Landsteiner Test. F. L. Neely, W. H. Baria, C. Smith and C. F. Stone Jr.—p. 382.
Comparative Evaluation of Several Complement Fixation Techniques for Laboratory Diagnosis of Rickettsioses. J. H. Schubert, S. M. Stanford and E. J. Tiffany.—p. 388.
Effect of Prolonged Administration of Antibiotics on Human Fecal Flora. H. R. Bierman and E. Jawetz.—p. 394.
*Polymyxin B and Polymyxin E: Clinical and Laboratory Studies. B. M. Kagan, D. Krevsky, A. Milzer and M. Locke.—p. 402.
Variable Effect of Atropine Sulfate on Fasting Gastric Secretion in Man. E. Levin, J. B. Kirsner and W. L. Palmer.—p. 415.
Reducing Substance in Urine of Patients Treated with Para-Aminobenzoic Acid. C. J. D. Zarafonetis and J. P. Chandler.—p. 425.
Alterations in Plasma Proteins, Plasma Volume, and Volume of Packed Red Cells in Patients Receiving ACTH or Cortisone. B. V. Jager, H. Brown and M. Nickerson.—p. 431.
Effect of Adrenocorticotrophic Hormone (ACTH) in Idiopathic Acquired Hemolytic Anemia as Related to Hemolytic Mechanisms. F. H. Gardner, A. E. McElfresh, J. W. Harris and L. K. Diamond.—p. 444.
Effect of ACTH on Leukocyte Counts in White Mice. E. H. Kass, M. M. Lundgren and M. Finland.—p. 458.
Influence of ACTH on Course of Experimental Influenza Type A Virus Infection. C. G. Loosli, R. B. Hull, B. S. Berlin and E. R. Alexander.—p. 464.

Effects of Drugs in Producing Vasodilatation.—Several drugs were tested for their immediate vasodilating action following a single intravenous injection in 16 patients, including 11 with arteriosclerosis of the lower extremities, one with arteriosclerotic endarteritis obliterans of the upper extremities, and four with vasospastic disorders of the lower extremities. Fifteen of these patients were given 75 mg. of 2-benzyl-2-imidazoline hydrochloride (priscoline®), 11 received 500 mg. of tetraethylammonium (etamon®) chloride, six received ethyl alcohol, and six received ether, 25 cc. in one-half liter of a 5% dextrose or isotonic sodium chloride solution. The intravenous infusion of 5% ether solution had a minimal effect on digital cutaneous blood flow, as measured by determination of skin temperature. The intravenous 5% alcohol infusion produced vasodilatation in one patient with vasospastic disturbances of the lower extremities but produced no rise in skin temperature in four patients with arteriosclerotic peripheral vascular disease. The administration of intravenous tetraethylammonium appeared to have a weak effect on increased cutaneous blood flow, as measured by skin temperature determinations. The effect was minimal and inconstant. Results suggested that tetraethylammonium is not a sufficiently potent agent for use in estimation of the degree of vasoconstriction in peripheral vascular disorders. The single intravenous injection of priscoline® appeared to be effective in relieving the component of abnormal vasoconstriction associated with arteriosclerotic obliterative vascular disease and in relieving vasospastic disorders. It was the most consistent and most effective vasodilator of the several agents used in this study. The presence of arteriosclerosis in the extremities does not necessarily indicate arterial insufficiency, but if this insufficiency is demonstrated to be present, then the use of vasodilating agents may clearly indicate to what extent it is due to organic occlusive changes. In addition to the demonstration of arteriosclerosis, the absence of palpable pulsations and decreased oscillometric excursions may not indicate occlusive organic arterial disease alone but may reflect abnormal vasoconstriction in the presence of sclerotic vessels. If there is no surface temperature response to the intravenous administration of priscoline,® it is probable that the arterial insufficiency is due to organic occlusion of the vessels as a result of thrombosis or mechanical block. The drug is offered as a test agent to aid in separation of the element of vasoconstriction from the mechanical obliteration of the lumen.

Polymyxin B and Polymyxin E.—In vitro tests showed that both polymyxin B and polymyxin E had a pronounced effect against some of the gram-negative pathogenic bacteria, which did not respond well either clinically or in vitro to any of the other presently available drugs. Polymyxin B and polymyxin E were given a therapeutic trial in 36 patients, 30 infants and children, and six adults, 22 with urinary tract infections, one with infection of both the urinary tract and the blood stream, nine with gastrointestinal infections, two with pulmonary infections, one with chronic otitis media, and one with meningitis. The infants and children were given 0.8 mg. of the drug per kilogram of body weight every four hours. All the adults were given the maximum dose of 20 mg. every four hours intramuscularly. Results showed that infections that may not respond to other less toxic drugs or antibiotics and for which polymyxin may be useful are those due to Escherichia coli, Aerobacter aerogenes, Pseudomonas aeruginosa, Shigella and Hemophilus influenzae. Polymyxin B appeared to be less toxic than polymyxin D. The principal evidences of toxicity due to polymyxin D were renal; those due to polymyxin B and E were neurological and allergic. The neurotoxic signs included weakness, drowsiness, ataxia, numbness of fingers and feet, impaired position sense, transient blurring of vision with diplopia, and nystagmus. All of these were usually mild and transient. Other evidences of toxicity were intense itching, especially about the mouth and face, feeling of very tight skin about the face, chilly sensations, sweating, and urticarial and maculopapular rashes. The latter symptoms were much relieved by tripelennamine (pyribenzamine®) hydrochloride. Most patients complained of moderate to pronounced pain at the site of the injection. The evidences of toxicity were much less pronounced in infants and children than in adults. Polymyxin is the most effective drug against serious infections due to most strains of Ps. aeruginosa. The drug should be considered also in infections due to other sensitive gram-negative bacteria that are resistant to other less toxic agents.

Laryngoscope, St. Louis

61:99-185 (Feb.) 1951

Embryonic Hearing Organs After Maternal Rubella. L. A. Schall, M. H. Lurie and G. Kelemen.—p. 99.
Acute Laryngotracheobronchitis: Analysis of 1,175 Cases with 98 Tracheotomies. A. R. Everett.—p. 113.
Third Statistical Study of Auditory Tests in Relation to Fenestration Operation. W. R. Thurlow, H. Davis, T. E. Walsh and E. Eldert.—p. 124.
*Headache and Vertigo Associated with Hypoglycemic Tendency. J. A. Harrill.—p. 138.
More Complete Adenoidectomy to Overcome Interference with Nasal Breathing by Salpingonasal and Salpingopalatine Folds.. E. Reeves and R. Brill.—p. 146.
Laryngeal Granuloma Following Intratracheal Anesthesia: Report of Four Cases. R. Peimer and S. S. Feuerstein.—p. 165.

Headache and Vertigo Associated with Hypoglycemic Tendency.—Headache, and to a lesser extent vertigo, are common symptoms of patients with spontaneous hypoglycemia. The case histories of 72 patients complaining of headache or vertigo and whose symptoms were relieved by high protein diet were reviewed. In all patients the symptoms were reproduced or aggravated during the five hour dextrose tolerance test, which, in most instances, gave a low curve, especially from the second through the fifth hour. In only 15 patients did the fifth hour level reach the fasting level, and in seven of these 15 the curve was flat. Symptoms were usually produced when the level dropped to 70 or less; in others, the rapidity of the fall of the sugar levels appeared to be the important factor. The headache experienced is visceral in character and is described as being dull and throbbing. It is often present at night and may be related to meals. Patients respond well to a diet high in protein and low in carbohydrates. Supplementary feedings may be necessary.

Minnesota Medicine, St. Paul

34:105-192 (Feb.) 1951. Partial Index

Significant Developments in Blue Cross and Blue Shield. A. M. Calvin. —p. 133.
Appendicitis: Failure to Correlate Clinical and Pathologic Diagnoses; a Surgeon's Viewpoint. R. L. Gorrell.—p. 137.
Appendicitis: Failure to Correlate Pathologic and Clinical Diagnoses; a Pathologist's Viewpoint. A. H. Wells.—p. 139.
*Dangers of Penicillin Therapy in Syphilis of the Central Nervous System; with Special Reference to Occurrence of Delayed Reactions. S. K. Shapiro and B. Berris.—p. 141.
Peripheral Neuritis Due to Polycythemia Vera. W. Chalgren and D. R. Johnson.—p. 145.
Trauma to Urethra and Bladder in Association with Pelvic Fractures. E. J. Richardson.—p. 148.
Arrhenoblastoma: Report of Case with Normal Pregnancy During Remission and Two Subsequent Normal Pregnancies After Surgical Removal. P. F. Eckman.—p. 152.

Penicillin Therapy in Syphilis of Central Nervous System.—Ten patients with neurosyphilis and one patient with tertiary syphilis of the skin were treated with penicillin according to the following schedule: from the first to the fifth day respectively, doses of 5,000, 10,000, 20,000, 50,000, and 100,000 units of penicillin were injected intramuscularly every three hours. From the fifth to the fourteenth day, patients received 100,000 units intramuscularly every three hours, and an additional 1,000,000 units of penicillin dissolved in 500 cc. of isotonic saline was administered daily intravenously. As controls, six nonsyphilitic patients were treated in a similar way. Eight of the 11 syphilitic patients had toxic reactions, all delayed in type. These reactions occurred on various days during the intravenous treatment. Symptoms were malaise, headache, nausea, chilly sensation, and temperature elevation. Two patients also had exacerbation of syphilitic symptoms. Two patients (one with pulmonary complications) succumbed after institution of the therapy. Three of the six control patients had systemic reactions: headache, malaise, chills, and fever. In all but one patient, the onset of the reaction followed intravenous injection of penicillin by one to three hours. In all patients, including controls, reactions occurred only after intravenous administration, but it is possible that the increasing intramuscular dosage that preceded it sensitized the patients and accentuated the reactions. Another possibility is that penicillin might have a direct neurotoxic effect, as suggested by the fact that delayed reactions occurred in the control group. However, exacerbation of specific syphilitic symptoms in four syphilitic patients suggests that another mechanism was operating, separately or in combination with the above. Severity of toxic reactions contraindicates the use of combined intramuscular and intravenous administration of penicillin in the schedule described, in treatment of neurosyphilis.

New England Journal of Medicine, Boston

244:275-314 (Feb. 22) 1951

Bilateral Thyrotomy for Carcinoma of Larynx. J. I. Kemler.—p. 275.
*Cardiovascular Manifestations in Acute Poliomyelitis. L. Weinstein and A. Shelokov.—p. 281.
*Analgesic Effect of Dromoran Hydrobromide (3-Hydroxy-N-Methyl Morphinan Hydrobromide) in Postoperative Pain. E. Keutmann and F. F. Foldes.—p. 286.
Q Fever: Report of Case in Massachussets. F. P. Vose.—p. 288.
Medicine as Social Instrument: Public Health. H. Emerson.—p. 289.

Cardiovascular Manifestations in Acute Poliomyelitis.—The incidence and character of cardiovascular disturbances were studied in 428 patients with acute poliomyelitis. Since 50% of the patients were adults, it was possible to compare the relative frequency of disturbances in the heart and blood vessels of persons of all age groups. Abnormalities of the electrocardiogram, including high-peaked, notched T waves, increase in P-R and Q-T intervals, a $Q_3 T_3$ pattern, T wave inversions in leads other than 3, depression of the S-T segment, and a $Q_1 T_1$ pattern were observed. In every case, the normal electrocardiographic patterns reappeared as the patients recovered from the acute phase of poliomyelitis. Thirty patients, eight less than 16 years old and 22 aged over 16, had prolonged elevation of blood pressure during their illness. Its development in most cases was probably related to hypoxia. Return to the normotensive state could be produced by establishment of a clear airway, overcoming of respiratory failure by various mechanical means or administration of oxygen. Myocarditis developed oftener and was severer in older patients than in young patients. The mild form is probably hypoxic in origin, whereas the severe form may be due to invasion of the heart by the virus. Pulmonary edema was revealed by necropsy in four of 16 fatal cases of the bulbar forms of poliomyelitis. Careful management of fluid intake in patients with bulbar disease is necessary. Intravenous hydration is probably best avoided. In one case sterile verrucous endocarditis was revealed by necropsy. The authors' observations as well as others cited in the literature support the growing concept of poliomyelitis as a diffuse disease rather than one limited to the anterior horn cells of the spinal cord. That damage may be produced in structures outside the nervous system is strongly suggested by the observation of severe myocarditis. The problem of the cardiovascular disturbances in poliomyelitis needs further study.

Analgesic Effect of Dromoran® in Postoperative Pain.—The analgesic effect of dromoran® hydrobromide (3-hydroxy-N-methylmorphinan hydrobromide), a new synthetic morphine analogue, in postoperative pain was compared with that of morphine sulfate in 623 surgical patients. Dromoran® hydrobromide (5 mg.) and morphine sulfate (10 mg.) were administered subcutaneously to 311 and 312 patients respectively. The first postoperative dose of dromoran® gave complete relief in 66.5% of the patients as compared to 46.2% with morphine. Following a total of 1,336 injections of dromoran,® complete relief was obtained in 75% of the patients, the average total number of injections per patient being four. After a total of 1,097 injections of morphine, complete relief was obtained in 54.7% of patients, the average number of injections per patient being 3.4. The average duration of analgesia produced by 5 mg. of dromoran® was 6.1 hours as compared to 5.8 hours with 10 mg. of morphine. The incidence of nausea and emesis was less with dromoran® than with morphine.

New York State Journal of Medicine, New York

51:561-688 (March 1) 1951

Clinical Comparison of Alpha-Estradiol and Conjugated Estrogens in Treatment of Menopausal Syndrome. N. B. Reicher, C. E. Clark and E. Bechtold.—p. 601.
Chemically Active Air Pollutants. I. R. Tabershaw.—p. 607.
Evaluation of Morusul in Treatment of Varicose Veins. N. Berg. —p. 610.
Use of Bacitracin-Tyrothricin Ointment in Treatment of Pyogenic Dermatoses. I. I. Lubowe.—p. 611.
Suppuration of Salivary Glands in the Newborn. I. N. Kugelmass. —p. 613.
*Intrasynovial Procaine for Symptomatic Relief of Osteoarthritis. H. Berger.—p. 615.
New Lange Colloidal Gold Test in Psychiatry. N. E. Stein, L. deMello and B. Dattner.—p. 617.
Use and Abuse of Antibiotics in Treatment of Localized Pilonidal and Perirectal Suppurations. R. Turell.—p. 619.
Observations in Sterility. J. S. Beilly and M. W. Greenberg.—p. 621.
Moderate Doses of Estrogen and Thyroid in Prevention of Abortion. J. Brimberg, N. H. Hass, M. G. Drimer and C. C. Weitzman.—p. 623.
Delay in Cancer Diagnosis. W. S. Wiggins, M. F. Hilfinger and L. G. Berman.—p. 626.
Administrative Aspects of BCG Vaccination Clinic for Newborns: Preliminary Report. E. G. Cermak and K. Birkhaug.—p. 629.
Inferior Vena Cava Ligation for Prevention of Recurrent Pulmonary Embolism. F. R. Cole.—p. 633.
Postspinal Headache in Obstetrics. J. Halperin and A. Bellwin.—p. 635.
*Estradiol Pellet Implantation in Carcinoma of Prostate. M. V. Okie, M. L. Carden, H. J. McGee and E. M. Tracy Jr.—p. 637.
A 14-Year Survey of Parturient Ruptured Uterus at the Harlem Hospital. L. B. Posner, D. F. Smith and H. L. Trambert.—p. 641.

Procaine Hydrochloride in Osteoarthritis.—Fourteen patients with osteoarthritis of one or both knees had unsatisfactory results from procaine hydrochloride administered intravenously, either because pain was not relieved or reappeared rapidly, or because of unpleasant toxic effects or mechanical difficulties. Following this, 10 cc. of 2.5 to 3% procaine hydrochloride were injected by intrasynovial route into the involved joint and the patients were followed for a period of four months to one year. All were improved, and some were completely relieved. One resumed his occupation as a track walker, covering several miles daily, and another resumed her trade of retail grocer, in which she spends long hours daily on her feet without pain. The results were so satisfactory that recently five patients who had not received procaine hydrochloride intravenously were so treated intrasynovially with equally gratifying results. This would negate the possible conclusion that this improvement was due to delayed action of previous intravenous administration of procaine hydrochloride.

Estradiol Pellet Implantation in Carcinoma of the Prostate.—Nine patients between the ages of 50 and 74 with prostatic carcinoma were treated by subcutaneous implantation of 50 mg. pellets of alpha-estradiol every three to four months. This type of administration was not associated with the undesirable gastrointestinal effects that orally administered estrogenic compounds often produce. Subcutaneous administration assures a constant source of supply, in contrast to oral administration, which may be interrupted by forgetfulness, indifference, or other factors. Results were eminently satisfactory. Relief from pain was prompt and in most cases complete. The patients were maintained in optimal state, free from pain, gastric distress, and breast hypertrophy. Progression of the prostatic tumor and of metastases was retarded. Cachexia of advanced carcinoma was frequently reversed, with substantial gains in weight, increase in strength, and return to gainful occupation. Two patients, who were first seen in advanced stages, died. It is suggested that a sustained high level of circulating estrogenic substance has been responsible for the pronounced efficiency of the alpha-estradiol pellets used in the authors' cases.

Northwest Medicine, Seattle

50:73-144 (Feb.) 1951

Early Care of Traumatic Wounds of Face. C. E. Gurney and V. V. Lindgren.—p. 92.
Perforated Peptic Ulcers. W. H. Tousey.—p. 95.
*Physiologic Position for Delivery. F. H. Howard.—p. 98.

50:145-228 (March) 1951

The Future of Medicine. J. W. Cline.—p. 165.
Cardiac Catheterization—Diagnostic Aid in Congenital Heart Disease. J. H. Lehmann, A. D. Johnson, W. C. Bridges and others.—p. 170.
Newer Concepts in Rheumatoid Arthritis. K. K. Sherwood and B. Zimmerman.—p. 176.
Rh Factor in Obstetrics. M. S. Sichel.—p. 181.

The Physiological Position for Delivery.—The conventional positions now generally in use in obstetrics are the modified lithotomy position, with the patient on her back, and to a lesser extent the Sims position, wherein the patient reclines on her side, the upper knee being drawn up to the abdomen. Most lecturers in obstetrics pass lightly over the so-called physiological position, which is the squatting position. Williams' textbook, describing the second stage of labor, says "the primipara, . . . if left to herself, will usually assume the crouching or squatting posture." Buxbaum, discussing delivery in ancient times, describes the squatting position. The author of this paper cites several considerations that suggest that the squat or crouch is the physiological position for delivery. He describes a mechanism whereby tentorial tears are caused in the lithotomy position, and he shows that the physiological position minimizes this danger. The author recommends a specially designed obstetric chair-table.

Pennsylvania Medical Journal, Harrisburg

54:97-192 (Feb.) 1951

Diagnosis and Therapy in Various Forms of Coronary Heart Disease. C. B. Ethridge.—p. 113.
Role of Antibiotics in Modern Treatment of Otorhinolaryngologic Conditions. M. S. Ersner.—p. 120.
Multiple Primary Malignancies. C. T. Beecham and A. S. Frantz. —p. 123.
Anatomic Surgery in Peripheral Vascular Disease. S. N. Rowe.—p. 127.
Responsibility of the General Practitioner in Public Health Aspects of Tuberculosis. C. H. Marcy.—p. 130.
Etiology of Rheumatic Fever. G. S. Gregg and F. J. Gregg.—p. 132.
Bronchiectasis: Rehabilitation with Surgical Treatment. G. P. Rosemond. —p. 134.
Cardiac Rehabilitation in Action in Industry. L. S. Ylvisaker.—p. 136.
Home Care for the Convalescent and the Elderly. R. R. Hoffman. —p. 139.

Plastic & Reconstructive Surgery, Baltimore

7:73-168 (Feb.) 1951

Behavior of Autogenous Human Tissue Grafts: II. L. A. Peer and J. C. Walker.—p. 73.
Influence of ACTH on Wound Healing in Man. H. Baxter, C. Schiller and J. H. Whiteside.—p. 85.
Three Age Phases of Orthodontic Treatment of Cleft Palate Child. C. R. Conroy.—p. 100.
Skin Thickness in Human. D. E. Barker.—p. 115.
*Complications of Decubitus Ulcers in Patients with Paraplegia. H. Conway, R. B. Stark, J. C. Weeter and others.—p. 117.
Polyethylene—Three Year Study. L. R. Rubin.—p. 131.
Plastic Surgical Treatment of Chronic Suppurative Hydradenitis. P. W. Greeley.—p. 143.
Plastic Method for Refilling of Facial & Skull Depressions. E. Aldunate. —p. 147.
Marjolin Ulcer Case Reports. W. B. Macomber and I. C. Trabue. —p. 152.
Method for Reconstruction of Large Nasal Fistula. J. A. Tamerin. —p. 157.

Decubitus Ulcers in Patients with Paraplegia.—This paper reviews the surgical treatment of 102 decubitus ulcers in patients with paraplegia. Experience with two groups of cases attested to the soundness of surgical technique, which includes the following steps: complete excision of the ulcer and regional scar tissue, excision of regional new bone formation together with the underlying bony prominence, rotation of a flap of muscle over the exposed bone, closure of the wound by the use of a flap of skin and fat rotated to the area of the decubitus (placed so that suture lines and resultant scars are not over the site of previous decubitus) and the use of a free graft of skin at the point from which the flap was elevated. Excision of the underlying bony prominence has been reflected in an increased percentage of success in the operative closure of these ulcers. In 56 operative closures previously reported, 71% were successful. In the series of 70 operations reported herein, 81.5% were successful. As patients advance from life in bed to wheel chair existence, an increase in the occurrence of decubitus ulcers over the ischial tuberosities is noted. In these cases excision of the underlying bony prominence effected a dramatic improvement in the results of operative treatment. When this step was not employed, healed wounds were maintained in only 47% of cases; when it was employed, healed wounds were maintained in 80% of cases. Extensive calcification of soft tissues in paraplegic patients indicates a poor prognosis.

Postgraduate Medicine, Minneapolis

9:101-192 (Feb.) 1951

Evaluation of Antibiotic Therapy. C. S. Keefer.—p. 101.
"Performance Index" as Method for Estimating Effectiveness of Reducing Regimens. N. Jolliffe and E. Alpert.—p. 106.
Management and Treatment of Cosmetic Dermatitis. N. Tobias.—p. 116.
Cryptogenic Fever. L. H. Sloan.—p. 118.
Management and Outlook of Coronary Disease. R. S. Berghoff.—p. 123.
Causes of Failure in Surgical Treatment of Hypertension. G. de Takats.—p. 128.

SYMPOSIUM ON TREATMENT OF AMEBIASIS

*Results with Diodoquin and Carbarsone. H. C. Conn and P. W. Feldman.—p. 137.
Results with Aureomycin. D. J. Mendelson and R. D. Friedlander. —p. 141.
*Results with Bismuth Glycolylarsanilate. H. C. Conn.—p. 144.

Diiodohydroxyquinoline and Carbarsone in Amebiasis.—A single course of therapy with diiodohydroxyquinoline (diodoquin®) and carbarsone was given to 497 patients with amebiasis. The dosage of diiodohydroxyquinoline was 0.63 gm. three times daily for 20 days. For 10 days 0.25 gm. of carbarsone was given twice daily. Patients were followed up for four years, with one examination every two months for one year whenever possible and then two examinations yearly for three years. The only toxic effects noted after administration of diiodohydroxyquinoline were frequent mild diarrhea and pruritus ani. After treatment with carbarsone one patient reported a mild skin rash, which quickly cleared after administration of the drug was stopped. Treatment failed in 66 of the 497 patients (13.2%). The percentage gradually became less as more examinations were made, but there were still some positive stools even after five successive negative specimens. Thus relapses were discovered after one or more years of presumed cure. Failures may be extremely resistant to treatment with any drug. The terms "arrested" or "apparent cure" seem to be much more appropriate in relation to amebiasis than that of "cure." Long-term follow-up is essential to proper control of amebiasis, which is becoming increasingly prevalent in civilian contacts of war veterans. A standard ideal laboratory diagnostic method using polyvinyl alcohol fixative stain as a preservative for trophozoites of intestinal amebas is suggested.

Bismuth Glycolylarsanilate in Amebiasis.—Thirty-six patients with amebiasis were treated with bismuth glycolylarsanilate (*milibis*®). The recommended adult dose is 0.5 gm. three times daily for seven days. In the presence of diarrhea larger doses may be needed. None of the patients reported on by the author had acute diarrhea, and they received only the above dosage. Treatment failed in four of the 36 patients (11.1%). One of the patients in whom treatment failed had two negative stool examinations after a second course of the drug. No toxic manifestations occurred in the group treated. It is felt that amebiasis in the future should be treated with chloroquine phosphate (aralen®) for systemic action and with a drug such as bismuth glycolylarsanilate for lumenal action. Long-term observation is a necessity in the treatment of amebiasis. All the drugs in use are effective in some cases. A few patients will be extremely resistant to any therapy. Patience and persistence will almost invariably produce a good clinical result.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

76:207-412 (Feb.) 1951. Partial Index

Eosinophile Levels in Hospitalized Psychotics During Combined Testosterone Estrogen Therapy. R. R. Sackler, M. D. Sackler, A. M. Sackler and others.—p. 226.
Serum Anti-Hyaluronidase in Human Leukemia and Lymphosarcoma: Effects of Cortisone and ACTH. H. H. Henstell and R. I. Freedman. —p. 239.
Effect of Intravenous Digitoxin on Fluid Distribution in Hospitalized Males Without Cardiovascular Disease. J. K. Aikawa, V. H. Knight and M. P. Tyor.—p. 250.
*Propagation of Pathogenic Fungi in Yolk Sac of Embryonated Eggs. J. W. Brueck and G. J. Buddingh.—p. 258.
*Loss of Protection by Vaccination Following Cortisone Treatment in Mice with Experimentally Induced Tuberculosis. M. Solotorovsky, F. J. Gregory and H. C. Stoerk.—p. 286.
*Absorption and Excretion of Viomycin in Humans. C. A. Werner, C. Adams and R. DuBois.—p. 292.
Inverse Changes of Serum Glucuronidase and Esterase of Breast Cancer Patients on Estrogen Therapy. S. L. Cohen and R. A. Huseby.—p. 304.
Influence of Storage on Viability of BCG Vaccine. K. Birkhaug.—p. 311.
Effect of Treatment with ACTH or Cortisone on Anatomy of Brain. C. W. Castor, B. L. Baker, D. J. Ingle and Choh Hao Li.—p. 353.
Effects of Ultrasonic Vibrations on Nerve Tissue. V. J. Wulff, W. J. Fry, D. Tucker and others.—p. 361.
Effect of Citrovorum Factor in Pernicious Anemia. R. R. Ellison, S. Wolfe, H. Lichtman and others—p. 366.
Passive Immunity in Poliomyelitis: II. Lansing Antibody Content of Human Gamma Globulins. A. J. Rhodes and E. M. Clark.—p. 379.
Role of Aureomycin and Citrovorum Factor in "Folic Acid" Deficiencies. H. A. Waisman, M. Green, J. C. Munoz and others.—p. 384.
Acid-Binding Capacity of Dialyzed Mucin Fractions from Human Gastric Juice. G. B. J. Glass, B. L. Pugh and S. Wolf.—p. 398.

Propagation of Pathogenic Fungi in Yolk Sac.—The studies reviewed in this report began with an attempt to produce infection of the chorioallantois with Actinomyces bovis. The extra-embryonic membranes were found to be indifferently suited for this purpose. Chance inoculation of the yolk sac resulted in the abundant growth of A. bovis. This observation led to a more thorough investigation of the possibilities of this method of inoculation for the propagation of pathogenic fungi and the study of mycotic infections. Embryos of seven to nine days' incubation proved to be most suitable for this purpose and were used throughout. The micro-organisms were introduced into the yolk sac of living embryos through a small slit in the eggshell by means of a tuberculin syringe and 22 gage needle. The yolk sac of the developing chick embryo proved to be highly suitable for the propagation of the following pathogenic fungi: A. bovis, Nocardia asteroides, N. intracellularis, Sporotrichum schenkii, Histoplasma capsulatum, Cryptococcus neoformans, and Coccidioides immitis. This method promises to be of value for the experimental study of these and other mycotic infections.

Loss of Vaccination Protection Following Cortisone Treatment.—The studies reported in this paper demonstrated that treatment with cortisone overcame the beneficial effect of vaccination in mice infected with a highly virulent strain of Mycobacterium tuberculosis, human type, but did not significantly increase the deaths in nonvaccinated mice. Treatment with cortisone increased the susceptibility of mice to infection with M. tuberculosis of reduced virulence. It is pointed out that exacerbation of tuberculosis during the hyperadrenal state has been observed in man and experimental animals. The mechanisms by which cortisone enhances the infectious process in experimental tuberculosis have not yet been completely elucidated. The results of the present study suggest that one of the mechanisms by which cortisone may alter the course of this disease is by interference with the immune response. In rapidly progressive tuberculosis where the role of acquired immunity would be expected to be minimal, cortisone did not exert a significant effect on the course of the disease. However, when vaccinated animals were treated with cortisone, the prolonged survival conferred by vaccination was lost.

Viomycin: Absorption and Excretion.—Viomycin, which is a derivative of a species of Streptomyces, has been of interest because of an inhibitory effect on mycobacteria, including M. tuberculosis, and because of its ability to suppress tuberculosis in animals. Preliminary clinical studies with viomycin in tuberculous patients have been carried out. The present study concerns the absorption and excretion of viomycin following its intramuscular injection in human subjects. It was demonstrated that viomycin was rapidly absorbed and that high concentrations were achieved in the serum after intramuscular injection. This may bear only a loose relationship to the successful utilization of the drug in antimicrobial therapy. However, the serum concentrations of viomycin that were attained were well in excess of the minimal inhibitory concentrations of viomycin required in vitro to suppress strains of M. tuberculosis isolated from patients with active tuberculosis. The pattern of absorption and urinary excretion of viomycin was similar to that of streptomycin.

Public Health Reports, Washington, D. C.

66:223-258 (Feb. 23) 1951

Health of Ferrous Foundry Workers. H. Heimann.—p. 223.

66:259-294 (March 2) 1951

Research Contributions of BCG Vaccination Programs: I. Tuberculin Allergy as Family Trait. C. E. Palmer and S. N. Meyer.—p. 259.
*Resistance to Streptomycin of Tubercle Bacilli Isolated from Patients Treated with Streptomycin. S. H. Ferebee and F. W. Appel.—p. 277.

66:295-326 (March 9) 1951

Negro Mortality: IV. Urban and Rural Mortality from Selected Causes in North and South. M. Y. Pennell and M. Gover.—p. 295.
Health Department Assistance in Nutrition Education in Elementary and Secondary Schools. F. E. Whitehead and F. J. Stare.—p. 306.
Rickettsialpox Case Due to Laboratory Infection. M. H. Sleisenger, E. S. Murray and S. Cohen.—p. 311.

Resistance of Tubercle Bacilli to Streptomycin.—Investigators from several sections of the country participated in cooperative studies on streptomycin resistance of cultures of tubercle bacilli isolated at intervals during a period of one year from 157 patients who had been treated with streptomycin for 91 days. At the end of 53 weeks tubercle bacilli could not be cultured from the sputum of 40% of the patients but could be isolated from the sputum of 55%. The remaining 5% of the patients had died. The tubercle bacilli of approximately two-thirds of the patients who still had positive sputum at the end of 53 weeks were resistant to streptomycin. This resistance to streptomycin tends to persist after the cessation of treatment, although reversion to streptomycin sensitivity was observed in cultures isolated from approximately 18% of patients. In the majority of patients, the development of resistance of tubercle bacilli to streptomycin occurred during the administration of streptomycin. Of 18 patients who could not be included in the program because their initial cultures of tubercle bacilli were found to be resistant to streptomycin, five had previously received streptomycin therapy. The development of streptomycin-resistant organisms may influence the patient's chances of converting to negative cultures.

FOREIGN

Annals of Tropical Medicine, Liverpool

44:299-382 (Dec.) 1950. Partial Index

Survival of Yellow Fever Virus in Refrigerated Mosquitoes. R. W. Ross.—p. 299.
Correlation Between Blackwater Fever, Malaria, Quinine and Atabrin. H. Foy and A. Kondi.—p. 309.
Neutralization of French Neurotropic Yellow Fever Virus by Sera of Bwamba Children. G. W. A. Dick.—p. 319.
Simple Method of Taking Stereoscopic Photomicrographs. D. Gall and W. H. H. Andrews.—p. 339.
Cyclical Transmission of Yellow Fever Virus Through Grivet Monkey, Cercopithecus Aethiops Centralis Neumann, and Mosquito Aëdes (Stegomyia) Africanus Theobald. R. W. Ross and J. D. Gillett.—p. 351.
*Review of Incidence of Cysticercus Bovis in Cattle in Great Britain, Together with Consideration of Some Aspects of Taenia Saginata Infection in Man. R. B. Griffiths.—p. 357.

Cysticercus Bovis in Cattle and Beef Tapeworm in Man.—Griffiths reviews the incidence of infection of cattle in Great Britain with Cysticercus bovis, the larval stage of Taenia saginata, the human beef tapeworm, and records the incidence recently observed by himself at an abattoir in the Liverpool area. The data indicate that within recent years there has been a decided increase in the incidence of C. bovis infection in cattle in Great Britain. It is therefore of importance to consider whether the incidence of the adult T. saginata has increased in the human population. In Denmark T. saginata infection in the human population increased with a rising incidence of C. bovis in Danish cattle. In Great Britain there is unfortunately little information available on the incidence of the adult tapeworm. It is known that there is a higher incidence of infection in women than in men. One report suggests that housewives may acquire the infection when beef is available in the raw state, i. e., in the kitchen before it is cooked. They also make the interesting observation that the cyst readily adheres to the hands, so that, in the preparation of diseased meat, the cysticerci may become attached to the hands of the housewife and thence be ingested. This tendency of cysticerci to adhere to the skin surface—and indeed to any surface—was noted by the writer when carrying out routine identification examinations of specimens received in the laboratory.

Archivum Chirurgicum Neerlandicum, Arnhem

2:301-400 (No. 4) 1950. Partial Index

Spondylitis Tuberculosa and Its Relation to Neurological Affections. A. C. de Vet.—p. 303.
*Therapeutic Possibilities of Grafting Cultivated Embryonic Tissues in Man: Parathyroid Gland in Cases of Postoperative Tetany. P. J. Kooreman and P. J. Gaillard.—p. 326.
Mignon's Eosinophilic Granuloma. H. N. Hadders, R. Ruding and D. Vervat.—p. 355.
Retrograde Intussusception of Efferent Jejunal Loop After Gastrectomy. M. Vink.—p. 377.
*Pedicle Graft for Ulcers of Lower Extremities. R. Brummelkamp.—p. 391.

Grafting of Cultivated Embryonic Parathyroid Tissue in Postoperative Tetany.—The various possibilities of therapeutic grafting are discussed, but particular attention is given to "real grafts," those which survive and become an integral part of the organism. In grafting endocrine gland tissue the following requirements must be fulfilled: the fragments must be thin; bleeding must be absent; the diffusion possibilities must be good; the revascularization must be fast; individuality factors must be in agreement or absent, and the grafts must be bacteriologically sterile. The work of Bert is mentioned, who stressed the importance of using tissues from embryos, because they do not yet possess much individuality and have a high regenerative power. Moreover, according to the work of several other investigators, cultivation of the tissues in mediums prepared from the future host is of great importance for good transplantation results. The authors of this report, Kooreman and Gaillard, started in 1940 to transplant cultivated fetal human parathyroid tissue into the patients with postoperative or with idiopathic tetany. Within three hours after death, the thyroid glands from newborn babies who died in the obstetric clinic were removed and stored in 10% placental vein serum in Gey's balanced salt solution. The thyroid gland was studied under the dissecting microscope. In this way organs such as extra thyroid glands, lymph glands, thymus glands, and real parathyroid glands could be seen. Neither topographical relations nor crude morphological criteria were sufficient to permit differentiation of the real parathyroid glands; all organs were therefore cultivated until—after one or two days—histological control and the behavior of the explants was absolutely conclusive on this point. After describing the cultivation of the tissues and the technique of implantation, the authors present the histories of the 27 patients with postoperative tetany and two with spontaneous tetany into whom 42 parathyroid grafts were implanted. The results of "real grafts" can be evaluated only after at least a year, since temporary grafts can be active for six or eight months. It was possible to evaluate 21 patients. The possibility of obtaining a positive result decreased with increasing age. Between 16 and 26 years of age four out of five patients were cured (80%). Between 26 and 36 years of age three out of eight patients were cured (37.5%). None of the eight patients between 36 and 56 years of age were cured. Repeated transplants were sometimes necessary to obtain a positive result in the younger groups.

Pedicle Graft for Ulcers of Lower Extremities.—Ulcers located on the anterior or medial aspect of the distal part of the leg are often refractory to treatment. The edges soon adhere to the tibia and become completely rigid. As the bottom of the ulcer rests on the tibia, vascular supply from the depth is only minimal; this renders the granulation tissue atrophic and inadequate as a substratum for the epithelium. However, the connective tissue reacts to wound irritation, in the crater as well as in the immediate vicinity of the ulcer. It will eventually begin to shrivel, thus constricting the afferent vessels and giving rise to a callous, ischemic mass in and around the ulcer. Once the process has reached this stage, spontaneous healing can no longer be expected. Lasting cure can be attained only by removal of all callous tissue and filling of the defect with full thickness skin. Implanting of full thickness skin with a layer of fat on such a defect is possible only by means of a pedicle graft. Fortunately, this persistent form of ulcer is nearly always situated along the anterior or medial aspect of the distal part of the leg. It is therefore possible to place the affected leg in such a position that the wound lies adjacent to the calf of the healthy leg from which the flap is taken. The author describes a method of suspending the donor leg freely over the affected one. This method offered no difficulties of fixation or nursing. The five patients treated in this manner all showed a favorable result.

British Medical Journal, London

1:373-430 (Feb. 24) 1951

Types of Human Diabetes. R. D. Lawrence.—p. 373.
*Constitution and Insulin Sensitivity in Diabetes Mellitus. J. Lister, J. Nash and U. Ledingham.—p. 376.
*Response of Megaloblastic Macrocytic Anaemia to Crystalline Penicillin G: Preliminary Report. H. Foy, A. Kondi and A. Hargreaves.—p. 380.
*Trial of Cinchoninic Acid Derivative in Some Collagen Diseases. J. B. Rennie, J. A. Milne and J. Sommerville.—p. 383.
Side Effects of Chloramphenicol and Aureomycin, with Special Reference to Oral Lesions. T. Tomaszewski.—p. 388.
Carcinoma of Cervix Uteri in an Infant. M. D. Baber, E. ap I. Rosser and J. D. O'D. Lavertine.—p. 392.
Dissecting Aneurysm of Aorta with Renal Complications. H. Brebner.—p. 394.

Constitution and Insulin Sensitivity.—In a study of 95 diabetic patients, 38 (eight men and 30 women) were found to have an unremarkable constitution in that no characteristic features common to the group could be observed. Thirty-seven (six men and 31 women) conformed to a definite constitutional type recognizable clinically, although all the stigmas were not present in each case. The latter group tended to be overweight, on the basis of a weight-height ratio of 2:1 as the standard of normality. One-fifth of the patients examined were intermediate in type and could not be classified. The mean insulin sensitivity of the patients with an unremarkable constitution was 0.78, and in those with a characteristic constitution it was 0.48. Partial cor-

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An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

relation coefficients for insulin sensitivity and obesity in the two types of diabetics did not enable the authors to define precisely the effect of weight on insulin sensitivity, but their clinical impression was that in most cases the actual sensitivity of a patient is a fundamental constitutional characteristic. Anthropometric measurements and somatotypings from 225 diabetics were analyzed by other workers who observed that two clearly different morphological types could be recognized. Although no insulin sensitivity tests were carried out by these workers and no somatotyping was done in the authors' 95 patients, the similarity between the observations in these two series of diabetic patients is stressed. There are two constitutional types of diabetic patients who differ in their reaction to insulin and in whom the etiology of the diabetic state is probably different.

Megaloblastic Anemia Treated with Penicillin.—A native African woman with megaloblastic macrocytic anemia was given 400,000 units of crystalline penicillin G daily for seven days. The reticulocyte level rose to 37%, and this was followed by a rise in the hemoglobin and red blood cells. No other treatment was given. The megaloblasts had disappeared from the marrow by the fifth day of treatment, and the giant stab cells had become much less numerous. The Price-Jones curve, which had originally shown anisocytosis and macrocytosis, reverted to the normal pattern. The response to penicillin in this patient in no way differed from that obtained in other patients with megaloblastic macrocytic anemias when treated with a potent liver extract, pteroylglutamic acid, vitamin B_{12}, or a yeast extract (marmite). It is suggested that the penicillin may have been effective by destroying an organism that was competing for some hemopoietic substance or it may have removed a hematopoietic antagonist. It may have even prevented the absorption of glutamic acid by competing organisms, which might thus have interfered with the synthesis of pteroylglutamic acid. Penicillin may have affected the metabolism and excretion of some essential amino acids. Any or all of these concepts might explain the response to penicillin.

Trial of a Cinchoninic Acid Derivative.—Twelve patients, nine adults and three children, four with rheumatic fever, two with polyarteritis nodosa, three with scleroderma and three with lupus erythematosus were treated with a cinchoninic acid derivative, 3-hydroxy-2-phenylcinchoninic acid. The dosage used was 20 mg. per kilogram of body weight by mouth daily, which in some instances was increased to 40 mg. Seven patients were treated for one week, the remaining five patients for two or three weeks. The drug was taken after breakfast in three divided doses at hourly intervals. Fever and acute arthritis were speedily relieved in the patients with rheumatic fever. Results in polyarteritis nodosa were equivocal. The most striking effects were obtained in the patients with scleroderma, a disease hitherto not responsive to any known treatment. Improvement occurred in all three patients, as shown microscopically by biopsy specimens obtained before and after treatment. The results have so far been maintained in one patient and were only temporary in the other two. Slight and inconstant improvement followed the administration of the 3-hydroxy-2-phenylcinchoninic acid in chronic lupus erythematosus but was not confirmed by microscopic examination. Toxic effects were infrequent and less severe than those that may follow the use of sodium salicylate and consisted in slight nausea, diarrhea, and, more rarely, vomiting.

Deutsche medizinische Wochenschrift, Stuttgart

76:165-196 (Feb. 9) 1951. **Partial Index**

*Indications and Results of Surgical Treatment of Prolapsed Lumbar Intervertebral Disk: Follow-Up Examination of 210 Cases Operated on. H. Kuhlendahl and V. Hensell.—p. 165.
Today's Picture of Plasmocytoma. S. Sandkühler.—p. 168.
Old and New Problems of Goiter. W. Eickhoff.—p. 171.
Traumatic Cushing's Disease. H. Robbers.—p. 175.

Surgical Treatment of Prolapsed Lumbar Intervertebral Disk.—Various forms of prolapsed lumbar intervertebral disk, ranging from simple degeneration or chondrosis of the disk with rupture of the annulus fibrosus to a "sequestrated prolapse" on the dorsal-paramedian surface of the completely ruptured disk, may be observed, but usually surgery is definitely indicated only in the latter form. Decompression of the nerve root is the first and foremost aim of surgical treatment. Not all the patients with a compressed nerve root and not every patient with protruded lumbar intervertebral disk should be operated on. Two hundred and ten patients operated on for prolapsed lumbar intervertebral disk were followed up by the author for more than one to four years. Complete disappearance of the sciatic pain and of the back pain and restoration of work capacity was obtained in 40% of the patients. Except for temporary insignificant back pain, the same good results were obtained in an additional 25%, so that satisfactory results were obtained in a total of 65% of the patients operated on. Thirty per cent of the patients were considerably improved, with 19% able to resume their former work, while 11% could only perform lighter work. Thus a total of 95% of the patients were operated on successfully. Five per cent of the patients operated on were therapeutic failures because of considerable back pain, which prevented them from resuming work. For the majority of them fusion operation seems advisable. An additional 5% of the patients operated on had recurrences; of these 12 patients, seven made a complete recovery after a second operation, and two with a mild recurrence made a spontaneous recovery. A review of 6,600 patients operated on, followed up, and cited in world literature revealed satisfactory results in 83 to 95% of the cases.

Gynaecologia, Basel

131:65-128 (Feb.) 1951. **Partial Index**

Morphological Study of Endocervical Mucosa in Relation to Menstrual Cycle and to Leukorrhea. G. Duperroy.—p. 73.
Anesthesia During Shock and Hemorrhage. V. Finderle.—p. 87.
Utrasonics and the Ovaries. P. Friedli.—p. 97.
*Problem of Perineal Endometriosis. J. Dubas.—p. 115.

Perineal Endometriosis.—The woman whose case is reported had undergone episiotomy in the course of a delivery 3½ years before. The area healed, and two weeks later the uterus had to be evacuated manually because of hemorrhage. The episiotomy scar was then ruptured, and, after that, healing was slow. Subsequently there was intermittent pain in the scar and occasionally there was bleeding, but real symptoms did not develop until about three years after the episiotomy had been done. An indurated area developed and gradually increased in size. The growth was painful, and drops of blood were discharged from it during the second half of the menstrual cycle. It was excised, and histological examination disclosed changes typical of endometriosis. This case is noteworthy because perineal endometriosis is rare. If the implantation therapy of endometriosis is accepted this may seem surprising, in view of the high incidence of perineal tears and episiotomies. The author feels that this rarity can be explained by the fact that the decidua expelled during the postpartum period is not implantable and is not capable of further development. Only mucosa in the phase of hormonal regeneration is implantable. It is suggested that in the reported case implantation took place not immediately after delivery but at the time of the profuse hemorrhage and uterine evacuation two weeks after delivery. The author believes that apart from rare hematogenous cases, perineal endometriosis arises from mechanical implantation.

Journal of Bone and Joint Surgery, London

32B:451-778 (Nov.) 1950

Orthopaedic Surgery in the United States of America. L. Mayer.—p. 461.
Orthopaedics in Continental Europe, 1900-1950: The Changing Pattern. H. Platt.—p. 570.
Fifty Years of Orthopaedic Surgery in Canada. R. I. Harris, W. E. Gallie, A. McLachlin and others.—p. 587.
Australian Orthopaedics in the Last 50 Years. H. J. Burrows.—p. 601.
First Half-Century of Orthopaedic Surgery in New Zealand. C. Milsom.—p. 611.
Development of Orthopaedic Surgery in South Africa During the Past Half-Century. J. M. Edelstein.—p. 615.
Orthopaedic Surgery in Southern Rhodesia. J. H. G. Robertson.—p. 618.
Half a Century of Orthopaedic Progress in Great Britain. H. Osmond-Clarke.—p. 620.
Some Classics of British Orthopaedic Literature. D. L. Griffiths.—p. 676.
Medullary Nailing of Fractures After 50 Years, with Review of Difficulties and Complications of Operation. R. Watson-Jones, J. G. Bonnin, T. King and others.—p. 694.
Endocrinology and Orthopaedics in 50 Years. S. L. Simpson.—p. 730.

Journal de Chirurgie, Paris

67:1-112 (Jan.) 1951

Invaginations of Ileal Termination: Roentgenologic Examination. M. Fèvre.—p. 5.
*Surgical Treatment of Portal Hypertension by Portacaval Shunts. J. Auvert.—p. 26.

Portacaval Anastomosis for Portal Hypertension.—Portal hypertension as it is encountered in Banti's syndrome or in certain cirrhoses can cause massive hematemesis. The demonstration of esophageal varices is a pathognomonic sign of this syndrome. In this report Auvert discusses the various aspects of the surgical treatment of portal hypertension. The operations employed are of two types: (1) splenectomy followed by implantation of the splenic into the renal vein after nephrectomy on the left side and (2) implantation of the portal vein into the inferior vena cava above the renal veins. At the time of operation it is important to determine whether there is intrahepatic portal obstruction due to cirrhosis or extrahepatic obstruction of the portal vein or its branches (splenic or mesenteric). Special attention is given to the initial abdominal exploration during which proof is established for portal hypertension. After the incision has been made (preferably a transverse, subumbilical one) the stomach, the spleen and its vessels, the porta hepatis, and the entire liver are subjected to visual and manual exploration, and this is followed by manometry at various points for verification of the existence of portal hypertension and its location. Manometric tests may be combined with intraoperative roentgenography of the portal vein with the aid of a contrast medium. Depending on the observations during these preliminary explorations, the surgeon can then enlarge the incision along the ninth rib either to the right side of the thorax for direct portacaval anastomosis or to the left half of the thorax for splenectomy and splenorenal anastomosis on the left side. Although the postoperative administration of heparin may seem desirable, it is often dangerous. Follow-up examinations show that only large anastomoses will prevent the recurrence of hematemesis.

Journal of Physiology, Cambridge

112:1-242 (Jan. 30) 1951. Partial Index

*Dyshidrosis Produced by General and Regional Ultra-Violet Radiation in Man. M. L. Thomson.—p. 22.
*Cause of Changes in Sweating Rate After Ultra-Violet Radiation. M. L. Thomson.—p. 31.
Effects of Severe Asphyxia on Kidney and Urine Flow. K. J. Franklin, L. E. McGee and E. A. Ullmann.—p. 43.
Urinary Excretion of Creatinine During Inhibition of Water Diuresis in Man by Ischaemic Muscle Pain. A. R. Kelsall.—p. 54.
Tension and Resistance to Stretching of Human Skin and Other Membranes, with Results from Series of Normal and Œdematous Cases. J. C. Dick.—p. 102.
Intra-Abdominal Pressures During Quiet Breathing. J. N. Mills.—p. 201.
Decrease in Hand Blood Flow Following Inflation of Arterial Occlusion Cuff on Opposite Arm. I. C. Roddie.—p. 204.
Effect of Posterior Pituitary Extracts on Renal Excretion of Sodium and Chloride in Man. T. M. Chalmers, A. A. G. Lewis and G. L. S. Pawan.—p. 238.

Dyshidrosis Produced by Ultraviolet Radiation.—In a hot, wet environment general ultraviolet radiation in moderate erythemal doses produced, in seven persons acclimatized to heat but not to radiation, up to 60% diminution in sweating rate on the second or third day after exposure. After recovery from the disturbance of sweating caused by one exposure to radiation, a second exposure produced a further fall in sweating rate in the same persons. The wave lengths causing the reduction in sweating rate are probably present in natural sunlight.

Cause of Changes in Sweating Rate After Ultraviolet Radiation.—The vesicular rash found in many subjects after ultraviolet radiation provided evidence that blockage of sweat gland ducts was at least partly responsible for the diminished sweating that followed the radiation. Occlusion of a proportion of the sweat gland ducts in irradiated skin was confirmed histologically. Blockage of sweat gland ducts, however, appears not to be the sole factor responsible for the decreased sweating. Indirect evidence suggests that the secretion itself is reduced. It is suggested that the reduced sweat secretion is brought about by toxins that have diffused from the injured epidermis. Skin injury produced by allyl isothiocyanate (mustard oil) also caused a fall in sweating rate similar in extent and duration to that produced by ultraviolet radiation. The slight reduction of sweating rate caused by locally applied massive doses of histamine suggested that the above effect of ultraviolet radiation and allyl isothiocyanate was not mediated through the release of a histamine-like substance.

Lancet, London

1:359-418 (Feb. 17) 1951

*Myocardial Ischaemia and Its Surgical Relief. G. A. Mason.—p. 359.
*Anaemia of Pregnancy Treated with Intravenous Iron. J. M. Scott and A. D. T. Govan.—p. 367.
Incidence of Tuberculin Sensitivity in Hospital Children: Related Mortality. M. J. Lunn.—p. 370.
Persistent Hypokalaemia Requiring Constant Potassium Therapy. K. Kjerulf-Jensen, N. B. Krarup and A. Warming-Larsen.—p. 372.
Treatment of Chronic Renal Potassium Deficiency. H. G. Davidsen, K. Kjerulf-Jensen and N. B. Krarup.—p. 375.
Fingerprint Detection and Mercury Poisoning. T. H. Blench and H. Brindle.—p. 378.
Effect of Venous Occlusion on Peripheral Arterial Blood-Flow. J. E. Thompson and J. R. Vane.—p. 380.
Recurrent Kaposi's Varicelliform Eruption in an Adult. W. C. Boake, J. A. Dudgeon and M. Burnet.—p. 383.
Clinico-Anatomical Study of Successful Leucotomy. S. D. McGrath.—p. 385.
Delayed Pulmonary Complications of Bronchography. P. W. Robertson and K. D. F. Morle.—p. 387.
Fatal Thyroid Crisis Complicating Toxic Granulopenia During Thiouracil Therapy. A. B. Pollard.—p. 388.

Myocardial Ischemia and Its Surgical Relief.—Although myocardial ischemia is often manifested by angina or coronary thrombosis, in many cases it is more insidious: there may be shortness of breath on exertion, a sense of oppression in the chest, or other sign of cardiac dysfunction, such as congestive failure, auricular fibrillation, or heart block. Since medical treatment is of little avail, various surgical treatments have been tried. These include (1) attempts to reduce the metabolic activity by reduction in thyroid activity, (2) interruption of nervous pathways, so that pain is eliminated, (3) stimulation of intercoronary compensating circulation by obstruction of the flow in the cardiac veins, and (4) operations to improve the vascularity of the heart muscle by the provision of extracardiac collateral vessels. Mason reviews observations on 30 patients subjected to the last type of operation during the past 14 years. In his earlier cases the original O'Shaughnessy anterolateral thoracotomy and transpleural exposure of the heart were used, and a pedicled graft of great omentum was brought up and applied to the heart. Later Beck's revised approach was used. With this the third, fourth, and fifth left costal cartilages are removed, the pericardium being opened extrapleurally and between the intercostal bundles. The parietal pericardium was abraded with Beck's raspatories and then it was smeared with paste made of a purified wheat gluten preparation (aleuronat) or asbestos powder was insufflated into the sac. If the condition of the patient permitted, the omentum was first brought up, spread over the heart surface, and tacked to the pericardium. For a time the author avoided suturing directly to the heart, but he now feels that this probably need not be feared. Eleven of the 30 patients did not survive the first month, three were not relieved of their angina, and 16 are thought to have benefited from grafting, but in six of the 16, the relief is problematical. It should be remembered, however, that nearly all these were rather hopeless cardiac cases. To restore only a third of such patients to full activity, even temporarily, as well as to relieve them of their painful disability seems to have been worth while. Experience and better facilities for anesthesia will probably improve the results.

Intravenous Iron for Anemia of Pregnancy.—Resistance to orally administered iron therapy is comparatively frequent in pregnant women with anemia, but in these resistant patients the intravenous method is often effective. Scott and Govan treated 150 anemic pregnant women with iron intravenously administered. On the first day the equivalent of 30 mg. of elemental iron is given, on the second day 60 mg., and on the third day 100 mg. Thereafter 100 mg. is given daily until the end of the first week. During the second week, 100 mg. is given every second day, so that by the end of this week 790 mg. of elemental iron has been given. In moderate cases the blood is then above the anemia level, and the patient may then be given iron by mouth if necessary. Patients with severe anemia may continue to receive iron intravenously, 100 mg. every second day, in subsequent weeks, or once a week, according to the severity of the anemia. If a single dose of elemental iron exceeds 100 mg., severe reactions tend to develop. Minor reactions, such as pain in the arm, common to many types of intravenous injection, occurred in about 20% of cases. During the antenatal period most of the patients responded immediately, and with the dosage used there was an average increase of 1.5 gm. of hemoglobin per 100 ml. in a week. About a third of the patients showed no response until the second week of treatment. This delay seemed to be related to the availability of protein. During the puerperium the average response to intravenous iron almost reached the calculated level of 4% increase in hemoglobin per 100 mg. of elemental iron administered. In a few cases this figure might be exceeded, probably owing to the hemoconcentration, which begins usually about the third day after delivery. However, some puerperal patients did not respond immediately. In five the cause was infection and cardiac failure. The rest had suffered severe shock at delivery. Intravenous iron therapy is useful in anemia in pregnancy, especially when quick therapy is needed.

Medicina, Buenos Aires

10:411-490 (Dec.) 1950. **Partial Index**

*Subacute Bacterial Endocarditis: Clinical, Anatomic and Therapeutic Studies in Chile. A. Garretón Silva.—p. 411.

Subacute Bacterial Endocarditis.—During the last 25 years the author has studied 605 cases of subacute bacterial endocarditis. The clinical aspects, special characteristics of the disease in Chile, the relation of the disease to rheumatic fever or congenital abnormalities of the heart, the diagnosis, prognosis, and pathological anatomy are discussed in detail. Penicillin was given to 172 patients whose disease was of rheumatic origin. This was administered on a three hour schedule with an initial dose of 200,000 units and a total daily dose of 1,600,000 units. Treatment was continued until the erythrocyte sedimentation rate was normal. The total dose varied from 8,500,000 units to 270,000,000 units. There was no correlation between the results of the pretreatment blood cultures and the results of penicillin treatment. Complete clinical cure occurred in 74 cases (43%). The ultimate outcome of these patients varied as follows: (1) permanent and complete clinical cure, (2) occurrence of embolism shortly after occurrence of apparent clinical cure (three cases in the author's group), (3) recurrence of the disease and subsequent control by reestablishment of penicillin treatment (four cases in the author's group), (4) clinical cure of the bacterial process with persistence of cardiac insufficiency, and (5) paradoxical clinical cure with appearance of progressive cardiac insufficiency and fatal outcome. The paradoxical results are frequent in patients with aortic lesion. The treatment in the three cases of persistent ductus arteriosus consisted of a surgical operation in two cases (with one cure and one failure) and successful penicillin therapy in one.

Minerva Medica, Turin

41:1203-1222 (Dec. 8) 1950. **Partial Index**

*Possibility of Accelerating Reabsorption of Intrapleural Blood by Means of Diffusion Factor: Preliminary Report of Experimental Study. B. Amistani and A. Vangelista.—p. 1208.
Frequency of Appendectomy in Patients with Cholecystitis. R. Cattaneo and P. C. Feraboli.—p. 1217.
*Tuberculous Peritonitis with Pseudoappendicular Symptoms. A. Mazzi.—p. 1220.

Reabsorption of Intrapleural Blood by Hyaluronidase.—Young dogs and rabbits were given intrapleural injections of their own blood mixed with an equal quantity of normal sodium chloride solution. Some were given 10 cc. of this mixture, others 300 cc. The injection was given into the right pleura through a small intercostal wound. Half the animals in each large group also received an intrapleural injection of 250 viscosity units of hyaluronidase, whereas the control animals did not. Daily roentgen examination of the dogs showed reabsorption of the intrapleural blood mixture usually within the first 24 hours after the injection in those receiving hyaluronidase or, in a few animals, within the first three days, whereas the quantity of the intrapleural blood mixture remained unchanged for five days or more in the controls. The rabbits were killed 24 hours after administration of the injection, and the residual intrapleural liquid was measured. There was half the quantity of residual intrapleural blood in the animals that had hyaluronidase in comparison to that measured in the controls. The results indicate that hyaluronidase favors reabsorption of blood collected in the serous cavities. The authors therefore advise clinical administration of the substance in all cases in which blood is collected into the serous cavities as a result either of a surgical operation or of trauma.

Tuberculous Peritonitis with Pseudoappendical Symptoms.—According to Mazzi, the pathological lesion of tuberculous peritonitis with pseudoappendical symptoms consists of a form of latent miliary tuberculosis, which is limited to the peritoneum and the ileocecoperitoneal segment. The lesion is not macroscopically identifiable. The author observed 230 patients who had an appendectomy for either acute or chronic appendicitis. Macroscopic lesions of tuberculous peritonitis were not seen during the operation. However, tuberculous peritonitis developed within three months after operation in 85 patients (38.99%). Hereditary predisposition to tuberculosis, temporarily diminished organic resistance of the patient, and, probably, surgical trauma transform the disease from latent to active. The author points out the danger of appendectomy in these cases and advises a careful evaluation of the clinical symptoms of appendicitis, either acute or chronic, in patients with previous symptoms of mild fever and pleuropulmonary or other diseases of tuberculous nature.

Münchener medizinische Wochenschrift, Munich

93:305-352 (Feb. 16) 1951. **Partial Index**

*Selective Angiography of Pulmonary Vessels: Preliminary Report. W. Bolt, A. Stanischeff and Zorn.—p. 305.
Lymphography. H. Cramer and A. Karpati.—p. 309.
Floating Kidney, a Frequently Unrecognized Symptom Complex. W. Martin.—p. 313.
Significance of Medicometeorological Observations in Diseases of Nursing Infants. F. Trendtel and Helbig.—p. 317.

Selective Angiography of Pulmonary Vessels.—A preliminary report is presented on 300 selective angiograms of pulmonary vessels. Five to 12 cc. of 80% solution of methyl glucamine salt of 3,5-diiodo-4-pyridone-N-acetic acid (perabrodil-M 80%) were injected into the pulmonary artery. Serial roentgen ray pictures of the lung segment concerned were made after the injection of the contrast medium, so that all the phases of the circulation in the segment concerned could be demonstrated. The contrast medium should not be injected under pressure if one of the vessels has been obturated by the catheter. The patients were aware of the local anethesia in the region of the vena mediana cubiti, but they were not aware of the passage of the catheter through the right side of the heart into the pulmonary artery. By this technique arteriography does not entail opening or damaging of the arterial wall. Selective angiography of the pulmonary artery is indicated for the early diagnosis of bronchial carcinoma. It is emphasized that the angiogram of atelectasis is completely different from that of bronchial carcinoma. Early stiffness of portions of bronchi and of areas of pulmonary parenchyma due to flat growth of the neoplasm may be better demonstrated by angiography than by bronchography. Selective angiography of pulmonary vessels also proved valuable in cases of silicosis of second and third degree, in nearly all of which the venous reflex could be clearly demonstrated in the segment concerned. The method also revealed the length of time during which the contrast medium remained in the capillaries. Selective angiography of pulmonary vessels should not be used as a routine procedure, but it may be considered an adjunct to old proved methods, such as bronchoscopy, tomography, and bronchography.

Proceedings of Royal Society of Medicine, London

44:1-100 (Jan.) 1951. **Partial Index**

Delay in Diagnosis of Tuberculous Meningitis and Its Relation to Results of Treatment. J. Lorber.—p. 1.
Plastic Operation for Hydronephrosis. J. C. Anderson and W. Hynes.—p. 4.
Parenteral Alimentation in Relation to Nitrogen Balance and Liver Damage. S. A. Doxiadis.—p. 5.
Soft Tissue Tumours: Their Natural History and Treatment. S. Cade.—p. 19.
Cerebral Basis of Consciousness. W. R. Brain.—p. 37.

BOOK REVIEWS

Neurology and Psychiatry in General Practice. Edited by Henry R. Viets, M.D. In collaboration with C. Charles Burlingame, M.D., Clarence B. Farrar, M.D., and Z. M. Lebensohn, M.D. Cloth. $3.50. Pp. 150. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

This small volume of sixteen chapters and 150 pages contains a wealth of material for the general practitioner which will aid him in the management of the neurological and psychiatric problems commonly encountered in his practice. The book is a summary of the discussions at the Clinical Session of the American Medical Association held in Washington, D. C., in the winter of 1949. The topics and the discussants were selected by the late Dr. C. Charles Burlingame, and the manuscripts were edited in a form suitable for the volume by Dr. Henry R. Viets, in collaboration with Drs. Burlingame, Clarence B. Farrar, and Z. M. Lebensohn. The choice of topics was excellent, and the leading authorities in the various fields have given a brief but lucid summary of the management of patients with the various disorders considered. Among the neurological conditions discussed are convulsive disorders of childhood and adult life, the Parkinsonian syndrome, neurosyphilis, and headache. Emphasis is placed on the medical therapy and general management of these conditions by the practitioner.

In the psychiatric section the physician is given information that will help him to decide which patients he can adequately care for and which ones should be referred to the psychiatrist for more intensive therapy. There are also chapters to orient the physician in regard to the value and limitations of electroconvulsive therapy and psychosurgery.

The book is well printed, and there is an adequate index. There are no illustrations, because the nature of the material presented did not require their use. The material presented in all the chapters is concise and relevant, and the volume should be of great value to the general practitioner.

Medical Psychology: A Basis for Psychiatry and Clinical Psychology. By G. K. Yacorzynski, Ph.D., Associate Professor of Nervous and Mental Diseases, Northwestern University Medical School, Chicago. Cloth. $6. Pp. 535, with 68 illustrations. The Ronald Press Co., 15 E. 26th St., New York 10, 1951.

This book has been prepared primarily as a textbook based on a theoretical-experimental approach. It is intended for use as a first year course in psychiatry. The author has presented only those theoretical constructs that have the widest acceptance and has endeavored to provide the experimental and clinical evidence from which they are derived. An attempt has been made to integrate the concepts of the behaviorist, Gestalt, and Freudian schools with the stated purpose of providing an integrated orientation for the student without the bias of any particular school.

The comprehensive coverage of the text makes it of value as a source background for psychiatrists, internists, sociologists, and other persons concerned with the problems of human behavior.

Medical Treatment in Obstetrics & Gynecology. By C. Frederic Fluhmann, B.A., M.D., C.M., Clinical Professor of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco, California. Cloth. $3. Pp. 157, with 27 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951

This small volume will find a ready demand among busy physicians. Dr. Fluhmann has assembled a quick and authoritative answer to questions which perplex many physicians in attempting to use the recently developed medications in this field. The preparations available in female endocrinology have confusing names and dosages, but with this ready reference you can write a prescription that may even satisfy your pharmacist. This is a clear, concise book on materia medica for the obstetrician and gynecologist.

Surgical Forum: Proceedings of the Forum Sessions Thirty-Sixth Clinical Congress of the American College of Surgeons, Boston, Massachusetts, October, 1950. Surgical Forum Committee: Owen H. Wangensteen, M.D., F.A.C.S., Chairman, and others. Cloth. $10. Pp. 665, with 260 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1951.

This attractively printed volume represents a definite innovation in surgical literature. The Forum on Fundamental Surgical Problems was established in 1941 as a permanent feature of the clinical congresses of the American College of Surgeons. The forum was created to give an opportunity to the younger men engaged in research on surgical problems to present their work before the older members of the profession. The papers represent what is best in the field of surgical research. The length of an individual paper was limited to 3,000 words. The present volume consists of reports on original research dealing with practically every aspect of modern surgery. In addition to the regular papers, each subdivision contains a number of abstracts. These are brief reports by authors who for one reason or another could not complete their papers. The publication of this type of literature has two advantages: it gives the younger men an opportunity to present their research, and it stimulates the older men preoccupied with practical clinical work. The volume is well illustrated.

Studies in Pathology Presented to Peter MacCallum. Edited by E. S. J. King, T. E. Lowe and L. B. Cox. Cloth. $7; 35s. Pp. 350, with 48 illustrations. Melbourne University Press, Carlton, N. 3, Victoria; Cambridge University Press, 51 Madison Ave., New York 10; Bentley House, 200 Euston Rd., London, N.W.1, 1950.

This book presents a series of papers in the field of pathology which were written by students and associates of Peter MacCallum, pathologist, of Melbourne, Australia, on the occasion of his sixty-fifth birthday. The papers cover various aspects of morphologic pathology, but many of them are also of interest to the clinician and concern broad aspects of biology. Special reference should be made among the 23 papers to "The Contribution of Pathology to Biology" by King, "Metaplasia" by Willis, "Normal and Pathologic Patterns in the Liver" by Cameron, and "Vascularization and Hemorrhage in the Arterial Wall" by Wartman. The last two authors were associated with Peter MacCallum only a very short time, whereas most of the others have been his students. The papers, as well as the large number of excellent illustrations, make worthwhile reading and give information not necessarily available elsewhere.

History of the New England Female Medical College, 1848-1874. By Frederick C. Waite. Cloth. $3. Pp. 132. Boston University School of Medicine, 80 E. Concord St., Boston 18, 1950.

In the preface and in chapter one, the author points out that the establishment about 100 years ago of a female medical college was part of a public agitation for woman's rights, which had been going on in the United States since 1836. By 1848, the number of agitators had increased to such an extent that a national convention was held, at which the right of women to enter the profession of medicine was advocated. Other liberalizing movements got under way about this time. The first homeopathic medical college was founded in the United States in 1836. Thomsonianism, a cult of botanic medicine, which had been rampant since the early 1820's, disintegrated in 1843, and from its remnants arose electicism, another cult, the keystone of which was the administration of only one drug at a time. The vagaries of mesmerism, phrenology, spiritualism, and animal magnetism tried to attach themselves to medicine, but they soon disappeared. A semblance of order was brought about by the organization of the American Medical Association in 1847. In 1848, instruction began in the first institution in the United States for teaching medical subjects to women, the Boston Female Medical College. This institution changed its name in 1851 to the New England Female Medical College. In writing this history, the author derives his information from the complete manuscript records of the trustees and faculty, from a nearly

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The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

complete file of reports and catalogues, from official records of legislative actions, and from articles in medical journals and newspapers. The American Medical Directory classifies the New England Female Medical College as homeopathic, but the author states (page 87) in discussing its graduates that "A point of interest is whether these graduates, educated in an institution where regular (allopathic) therapeutics was taught, continued to be regular in their practice or became allied with one of the medical sects. . . . The practice of women physicians was almost exclusively with women and children with whom the mild and tasty medicaments of homeopathy were popular. Therefore, it was not surprising that some of these graduates adopted homeopathic methods." Only 98 women received the degree of Doctor of Medicine from this college before it merged with the Boston School of Medicine in 1874.

Hemodynamics in Failure of the Circulation. By W. B. Youmans, M.D., Ph.D., Professor of Physiology, Department of Physiology, University of Oregon Medical School, Portland, and A. R. Huckins, M.S., M.D., Research Assistant, Department of Physiology, University of Oregon Medical School, Portland. Publication number 88, *American Lecture Series, monograph* in American Lectures in Physiology, edited by Robert F. Pitts, M.D., *Ph.D., Professor of Physiology,* Syracuse University College of Medicine, Syracuse, N. Y. Cloth. $2.75. Pp. 71, with 10 illustrations. *Charles C Thomas,* Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

This monograph describes in simple terms the present concept of heart failure. The authors have restricted the term "heart failure" to those conditions in which the heart is primarily involved. For those disturbances of circulation in which venous congestion is prominent and the cardiac output is increased, such as in the case of arteriovenous aneurysm and the so-called "beri beri heart," the term "chronic venous congestion without heart failure" is used. To one who has always been disturbed by the term "heart failure with high cardiac output" in cases in which the heart was not primarily involved, this new method of classification makes sense.

In order to make the total presentation as simple as possible, the authors have wisely refrained from long discussions on controversial matters. However, a bibliography consisting of two hundred references is available for those who wish to read further on the subject. The role of the kidney in the picture of congestive heart failure is well presented. The confusing terms of "backward" and "forward" failure are wisely omitted. Diagrams are used to show the effects of heart failure and schematically indicate the mechanisms concerned in the total picture. This monograph will be of considerable value to medical students and to those physicians who have not had an opportunity to review the voluminous literature on this subject in the past few years. It could also be read with profit by those who are working in the field of cardiovascular diseases.

Klinische Chemie und Mikroskopie: Ausgewählte Untersuchungsmethoden für das medizinisch-chemische Laboratorium. Von Dr. Lothar Hallmann. Sixth edition. Cloth. 24.60 marks; $5.85. Pp. 594, with 173 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O, 1950.

This well-organized book gives the information usually available in the standard textbooks of laboratory diagnosis in this country. The initial chapter deals with general technique of the clinical laboratory, with a special section devoted to reagents. The chapters following deal with the examination of saliva, gastric and duodenal content, feces, sputum, exudate, transudate, content of cysts and prostatic secretion, urine, spinal fluid, and blood. Included is a special chapter on normal values in blood, urine, and spinal fluid, and another one is devoted to micromethods. In an appendix, relatively few references to the literature (mostly German) are given and technical terms are explained. The entire presentation concentrates on description of methods, with relatively little theoretical discussion. In the selection of the methods, clinical application is kept in mind. Much use is made of tables and very good illustrations. The book is unusually well organized, and a surprising amount of information is compressed into a small space. Nevertheless, it mainly reflects the methods used at present in Germany, which are not necessarily identical with those used widely in the United States. Consequently, it is of only little value in the American laboratory.

Handbuch der Virusforschung. Herausgegeben von Prof. Dr. R. Doerr und Prof. Dr. C. Hallauer. II. Ergänzungsband. Bearbeitet von F. M. Burnet, et al. Cloth. $16.50. Pp. 425, with 187 illustrations. Springer-Verlag, Mölkerbastei 5, Wien 1, 1950.

This handbook contains a series of reviews by an international group of experts. Some chapters contain practical technical information; others discuss special problems such as the phenomenon of hemagglutination, virus pneumonia, variation in influenza viruses, and immunity in influenza. Almost half of the volume is devoted to an excellent review of electronmicroscopy in virus research by Helmut Ruska. This investigator compares electronmicroscopy with other methods, including other microscopic procedures, used in research on viruses. After a thorough discussion of principles, characteristics, limitations, and methodology, there is a report of findings of electronmicroscopic studies on protozoa, spirochetes, bacteria, rickettsiae, and viruses. This review contains a large number of very fine photographs of these agents prepared by the author and other investigators in Europe and America. The bibliography consist of more than 600 references.

A good bit of useful information is given in the chapters on roller tube tissue culture by A. E. Feller, on drying of viruses by E. W. Flosdorf, and application of reflected light and dark-field microscopy by M. Kaiser and P. Vonwiller. There is also a discussion of variation in influenza viruses by F. M. Burnet. This problem is of vital importance not only from the standpoint of better understanding of the nature and behavior of these viruses, but also from the point of view of practical considerations in the control and prevention of influenza as illustrated by the subsequent chapter by T. Francis Jr., who presents a timely subject, immunity and vaccination in influenza. A discussion bearing somewhat on the virus of influenza but covering comprehensively a phenomenon exhibited by several viruses and other agents is contained in a chapter by C. Hallauer. M. D. Eaton gives an interesting and extensive review of virus pneumonia and pneumonitis viruses of animals which are transmissible to man. The chapters by the European authors are in German; those by the American and Australian workers are in English. In addition to a table of contents, there is also a composite subject index.

Die suprapubische Prostatektomie mit primärem Blasenverschluss nach eigener Methode: Vorbereitung, Technik, Nachbehandlung. Von Univ.-Prof. Dr. Theodor Hryntschak, Vorstand der urologischen Abteilung der Wiener städtischen allgemeinen Poliklinik. Cloth. $5.70. Pp. 166, with 35 illustrations. Wilhelm Maudrich, Spitalgasse 1B, Wien 71, 1951.

This monograph is limited to a discussion of suprapubic prostatectomy with primary closure according to the technique devised by the author. A good historical review of the various methods used in bladder closure is presented, and as far as the author is able to determine, he is the first person to use purse string sutures in closing the bladder. In some instances he uses a cross stitch over the first purse string suture, over which he uses another purse string suture.

The author stresses the importance of close cooperation with the internist in the study of the cardiovascular system before the operation. In the preoperative preparation of the patient, he prefers to avoid the use of the indwelling catheter when there is no infection. He believes the use of the indwelling catheter predisposes to embolism and thrombosis, two conditions that play a large role in the cause of deaths. The importance of meticulousness in the postoperative management is stressed.

On the subject of bleeding after the operation, the author differentiates between the slight ooze from the wound bed, which can be controlled with a syringe at the patient's bedside, and the profuse bleeding, which necessitates opening the bladder to control it. The slight ooze from the prostatic bed he designates as "bleeding on the day of operation."

The author gives a detailed description of his operation and the manner in which it differs from the operation first proposed by Dr. Harris of Australia. The monograph contains a report of 100 cases of suprapubic prostatectomy with primary closure. There were four deaths, three of which were due to pulmonary embolism, and one was due to sepsis. In only one case did a suprapubic fistula develop. The author has also used this method of primary closure of the bladder in cases of foreign bodies, bladder stones, and bladder tumors. These are illustrated with brief case reports.

This monograph has been prepared in great detail. The printing is very good, and the illustrations, of which there are thirty-five, are excellent. The author has a vast experience and is well qualified to write this kind of book. To those interested in this type of prostatectomy, this book will be of great value.

Congenital Heart Disease. By James W. Brown, M.D., F.R.C.P., Physician to Grimsby General Hospital, Grimsby, England. Second edition. Cloth. $6; 30s. Pp. 344, with 128 illustrations. Staples Press, Ltd., Mandeville Place, London; 70 E. 45th St., New York 17, 1950.

In the eleven years since the first edition of the book was published, there have been so many important advances in diagnosis and treatment that this edition is largely rewritten and is, therefore, practically a new book. The author has described his own observations based on a large series of cases followed for many years. He has also quoted extensively from the literature and has included a well-chosen, fairly complete bibliography of the important literature. The common abnormalities, particularly those that can be recognized clinically, are given more prominence than rare lesions that can be diagnosed only at autopsy. Although information gained by catheterization is discussed adequately, angiocardiography is only briefly mentioned, chiefly because the author, as he himself states in the preface, has had little personal experience with the technique. The book is easy to read, even in the sections devoted to the more complicated congenital defects. The illustrations are simple and well chosen. The monograph is, therefore, a good reference book, not only for the cardiologist, but for any physician who has occasion to see a patient with congenital heart disease.

Human Biology. By George Alfred Baitsell, Colgate Professor of Biology, Yale University, New Haven. Second edition. Cloth. $6. Pp. 730, with 361 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1950.

This book presents the subject of biology from the standpoint of that most interesting of organisms, man. The phenomena of animal and vegetable life are interpreted as to their significance to man and their resemblances to processes in the human body, and practically every aspect of human anatomy and physiology is compared with analogues among other living things, large and small. The treatment is kept from becoming unduly general and abstract by a wealth of illustrations, constant reference to specific examples in the text, and a remarkable 153 page appendix. This last consists largely of verbatim quotations from especially famous or well-written sources, such as Beaumont's description of the observations on St. Martin.

Very few minor faults are to be found; an example is the description of the stomach on page 56. The author would also be justified in adhering more consistently to the metric system, since the book is for college students. On the whole, it is a most commendable and substantial work.

Trends in Gerontology. By Nathan W. Shock, Chief, Section on Gerontology, National Heart Institute, United States Public Health Service. Cloth. $2.50. Pp. 153, with 12 illustrations. Stanford University Press, Stanford University, California, 1951.

Gerontology is defined as "the scientific study of the phenomena of aging." In this readable, informative book, Dr. Shock surveys present day problems, programs, and plans concerning older persons. An expansion of a preliminary report submitted to Stanford University in 1949, this volume discusses twelve topics: population, employment, income and retirement, health insurance, housing, education (public and professional), community programs, present activities in medical research, laboratories and institutions that are engaged in or planning research, needs in research, and a detailed outline of how an institute in gerontology should be organized and what it could do. Thus the [illegible] emphasis is on research. Not a clinical volume, this book serves as a summary and discussion of statistical, social, economic, community, and research phases of the "grave social problem" created by the rapid increase in number and proportion of our population of older persons. The book is noteworthy if only for its summary of current research in the biology, physiology, medicine, and sociology of aging.

Cornell Conferences on Therapy. Volume IV. Edited by Harry Gold, M.D., Managing Editor, and others. Cloth. $3.50. Pp. 342. The Macmillan Company, 60 Fifth Ave., New York 11, 1951.

The Cornell Conferences on Therapy were inaugurated in 1937 as a joint venture of the departments of medicine and pharmacology. The intention was to take up such topics as seemed of particular interest at the time. A conference is usually initiated with introductory remarks, but the discussion is, for the most part, extemporaneous. The aim, according to its editors, was limited to the exploration of some aspects of special interest, analysis of the evidence on controversial points of opinion and practice, elaboration of the physiologic, pharmacologic, and chemical basis of therapeutic measures, and presentation of these on the level of the general practitioner. After the first year's experience, it was felt that a permanent record would enhance the value of these conferences. Accordingly, the proceedings were taken down by a stenotypist. The next step in the evolution of these records was their monthly publication from 1937 to 1940 in The Journal. In 1940, the publication was transferred to the *New York State Journal of Medicine* and still later to the *American Journal of Medicine.* Since 1946, the plan was adopted to print one conference every other month in the *New York State Journal of Medicine* and one every other month in the *American Journal of Medicine.* The final step in the evolution of the conferences was their annual publication in a volume reporting a group of conferences selected for their quality and value.

The "conferences" published in this volume reflect the variety of topics that come under discussion. "Household Poisonings," "Management of Disorders of Cardiac Rhythm," "Medical Management of Hypertension," "Therapeutic Uses of Gamma Globulin," and "Management of the Menopause" are some of the fifteen topics covered in this volume. The nature of the discussion is preeminently practical. The information which is supplied by experts in a given field is valuable and is up-to-date. Each conference is terminated by a summary. The small volume should prove of great interest both to the internist and to the general practitioner.

The Student's Handbook of Surgical Operations. By Sir Frederick Treves, Bart., G.C.V.O., C.B., Ninth edition, revised by Sir Cecil Wakeley, K.B.E., C.B., D.Sc., Senior Surgeon to King's College Hospital, London. Cloth. $5.50. Pp. 580, with 269 illustrations. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1951.

The popularity of this book is attested by the fact that since its first appearance in 1892, it has gone through eight additional publications. The new edition has been thoroughly revised, many new illustrations have been added, and the text has been brought up-to-date. Many of the old illustrations have been replaced by modern ones. This handy little volume of some 500 pages covers the entire field of surgery in a somewhat condensed but otherwise satisfactory manner so far as the student is concerned. In conformity with the older textbooks, part one consists of "Ligature of Arteries." The importance of this procedure in the light of modern surgery is probably secondary. This particular chapter could be left out. The print and the illustrations are satisfactory.

Health and Human Relations in Germany. Report of Conference on Problems of Health and Human Relations in Germany, Nassau Tavern, Princeton, N. J., June 26-30, 1950. Paper. $1. Pp. 207. Josiah Macy, Jr. Foundation, 565 Park Ave., New York 21; National Association for Mental Health, 1790 Broadway, New York 19, 1950.

This is a report of a conference attended by persons who have done work in Germany in connection with the United States Military Government, now High Commission for Germany, UNESCO, some British and French representatives, and a few Germans. Although "health" is first in the title, most of the volume is devoted to education and the function of the democratic process in relation to the German character. The report ought to be of wide interest but probably will not be, because the indications are that, despite the recommendations of qualified persons who have been in Germany, the policy of the United States seems to be constant curtailment of personnel and funds through which human relations and health progress in Germany could be fostered.

QUERIES AND MINOR NOTES

SUDDEN SEVERE PRECORDIAL PAIN

To the Editor:—*Eight months ago a patient experienced sudden, severe, persistent precordial pain. He had some ashy pallor, bradycardia followed by tachycardia and temperature of 100 F. on admission to the hospital. There was no dyspnea; the skin was cool, clammy and moist. He had a duodenal ulcer of 18 months' duration, although positive x-ray findings were noted one month preceding sudden onset of pain in the chest. Sedimentation time was 15 and the leukocyte count 8,500; the temperature was normal in 12 hours. An electrocardiogram showed slight elevation of the RS-T interval. The patient was out of bed in two weeks and home in four weeks. An unusual symptom was prolonged tenderness of the chest wall anteriorly and posteriorly and inability to lie on either side. Chair back pressure on the left scapula was painful, causing acute soreness. After eight months, however, the soreness disappeared. The patient used banthine® for the duodenal ulcer but discontinued it because of precordial distress, similar to that induced by exercise. The cardiologist was not convinced that the patient had a coronary occlusion. Heparin and dicumarol were used. Graduated exercise is now in progress, with discontinuance short of fatigue. Do you concur with the general plan of treatment? How long should the rest period be continued before gradual return to light activity? I have never encountered a case before with such acute chest wall tenderness.*

Everett D. Hockenberry, M.D., Coral Gables, Fla.

Answer.—It seems that acute coronary occlusion with little or no myocardial infarction can best explain the severe illness eight months ago. The tenderness of the chest wall is not easily explained, because most patients with disease of heart or lungs do not have such tenderness. Nervously sensitive persons, however, who are subject to neurocirculatory asthenia frequently show tenderness of the chest wall. Rest in bed can result in muscular or joint soreness, due perhaps to posture or to actual arthritis, myositis or neuritis, generally temporary in duration. When full activity is resumed, these symptoms usually clear up. It would be important to know the details of serial electrocardiograms, in which leads the RS-T intervals were elevated, and what progressive changes were shown in repeated records.

Another possible explanation of the prolonged pain and tenderness around the left chest (back as well as front) is that of an initial or primary or of a complicating herpes zoster although no note was made of any skin eruption therefrom if it was present. A direct nerve origin of these troublesome symptoms seems quite logical.

The therapy of the attack seems to have been adequate. Advice as to future activity must depend on the coronary reserve. If certain physical or nervous strain brings on angina pectoris, such strain should be avoided. Care must be taken to rule out other causes of discomfort, such as neurocirculatory asthenia and the peptic ulcer itself. It would not seem necessary to continue the rest period for the heart now except for avoidance of strains that might produce angina pectoris. It does not take many weeks for the complete healing of a myocardial infarct. Sometimes, however, months or years pass before angina pectoris yields to the natural development of an adequate collateral circulation, and sometimes angina pectoris recurs persistently for the duration of life but can be tolerated by avoidance of strain and the use of nitrites.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PERSISTENT SALTY TASTE

To the Editor:—*A 57 year old white man has had an annoying salty taste in his mouth for three years. The symptom started while he was having teeth removed for pyorrhea and persisted after removal of all teeth and after he was fitted with full upper and lower acrylic dentures. It is so annoying that he constantly sucks on candy or chews gum. He uses no salt on his food. He is in good health except for a traumatic glaucoma, for which he has been using 25 per cent pilocarpine, one drop daily in the right eye for seven years. The blood is normal except for 5 per cent eosinophils. The urine is normal. No oral lesions or systemic diseases were detected on physical examination. I should like an opinion on diagnosis and suggestions for further study.*

Robert A. Marks Jr., M.D., Buffalo.

Answer.—If the timing of the onset of symptoms is correct and the mouth condition is normal, several possible causes can be ruled out. The constant salty taste should have no relation to the previous use of pilocarpine or the later use of dentures. Pilocarpine produces an increase in saliva, but the dose in use is so small and infrequent that it is not probable that it could be effective on a single type of taste bud in the mouth. The salty taste aberration could not be explained on a basis of nerve change or injury at the time of extraction. Taste changes may occur between the ages of 50 and 70 as a part of senescence but are usually due to lowered sensitivity, especially if the palate is covered by a plate. Subclinical glossitis can produce taste abnormality, as described in the answer to a query in The Journal of Sept. 17, 1949 (page 237). Saliva contains taste-activating hormones, but the use of salivary depressants and stimulants to determine the effect of saliva volume on taste might disturb the glaucoma. The persistence of the salty taste suggests a psychoneurotic etiology, and a capable neuropsychiatrist could check both the nerve and psychic aspects.

DUODENAL ULCER IN DIFFERENT RACES

To the Editor:—*Is there any particular race subject to duodenal ulcer, and what are the ratios in the different races?*

Benjamin Berger, M.D., New York.

Answer.—Data concerning the racial incidence of duodenal ulcer are not as plentiful as is indicated by the importance of the question. In 1945, L. G. Rowntree, in analyzing a large number of selective service registrants, reported a 0.52 per cent incidence of peptic ulcer in white troops as compared with 0.14 per cent in Negroes. A detailed analysis of this problem is presented in the book on peptic ulcer by A. C. Ivy, M. I. Grossman and W. H. Bachrach (New York, The Blakiston Company, 1950). According to these authors, the findings obtained as a result of a large series of autopsies performed on a group of Chinese and Javanese male laborers in Sumatra revealed profound differences. Thus in 1,370 autopsies on the Chinese laborers, 151 ulcers or scars of ulcers were found, an incidence of 11 per cent. On the other hand, in 1,269 Javanese laborers examined postmortem, ulcers or scars of ulcers were found in only 8, an incidence of 0.6 per cent. The authors quote Bonne as noting that absence of visible emotion is rather characteristic of the Malay race. This study in Sumatra is valuable in that the comparison was made between two races with subjects of the same sex and similar occupation. With the increasing evidence that environmental factors, such as occupation and subjection to stress and strain, play such an important role in the disease, before one can attribute variations in incidence of peptic ulcer to differences in race, it is essential that comparisons be made between persons of the same sex and subjected to the same environmental pressures. Although a general impression exists that the incidence of duodenal ulcer in Negroes in the United States is significantly less than in the white race, this difference has become much less pronounced when environmental factors have been about the same.

BONE CYSTS

To THE EDITOR:—*A 17 year old boy is 12 pounds (5 Kg.) overweight; his height is 70 inches (178 cm.), blood calcium 10.6 mg. and blood phosphorus 3.4 mg. X-ray reveals a normal pituitary; the lower ends of both femurs show small partly healed bone cysts and slight osteoporosis; the lower end of the right tibia shows a solitary, partly healed bone cyst. The diagnosis probably is hyperparathyroidism (von Recklinghausen), but the parathyroids are not palpable. Would use of calcium gluconate be advisable? A diet rich in calcium and phosphorus was given. What is the best treatment? How can one exclude a tumor or hyperplasia of the parathyroid?*

Jacob Aisenstat, M.D., New York.

This inquiry was referred to two authorities, whose respective replies follow.—ED.

ANSWER.—With normal serum calcium and serum phosphorus levels, hyperparathyroidism is unlikely. There is nothing in the query to suggest that there is generalized demineralization of bone. One would have to consider polyostotic fibrous dysplasia. The most likely diagnosis from the facts at hand is neurofibromatosis with bone involvement. The lower ends of the femurs are apt to be involved in this condition. The same is true of the lower thirds of the tibias. The fact that the parathyroids are not palpable is of no significance in ruling out hyperparathyroidism. The treatment in this case depends on the diagnosis. The diagnosis would be strengthened if café au lait areas of pigmentation or subcutaneous neurofibromas could be demonstrated.

ANSWER.—One should make calcium balance studies in order to observe the excretion of calcium on an inadequate calcium intake. Concentration of calcium and phosphorus in serum appear to be within normal limits, but further studies should be made. Hyperparathyroidism may be present without a palpable tumor in the neck. Enlarged parathyroid glands may be found in the mediastinum or buried in the thyroid. Parathyroid tumors may be so small that they are difficult to palpate even though they are present in the usual location. Hyperparathyroidism may be associated with hyperplasia of the parathyroid glands without much enlargement. The development of bone cysts does not necessarily mean that hyperparathyroidism is present, but they do mean that every effort should be made to exclude this condition. If hyperfunction of the parathyroid glands is not present, it would seem logical to administer fairly large doses of calcium supplemented by vitamin D.

NYMPHOMANIA

To THE EDITOR:—*A 30 year old married woman had a subtotal hysterectomy seven years ago. Three months ago she complained of irritability and hot flashes and was given estrogens with relief. She then complained that she had had excessive libido for six years. On cessation of treatment with estrogens, hot flashes returned but excessive libido remains. She states that full orgasm is reached at each intercourse and that she is forced to awaken her husband two to three times per night to satisfy her desire. She cannot go to dances and even avoids men on the street, as this produces painful pelvic congestion. Pelvic examination reveals no masses. Please help me with the etiology of this condition and treatment in this case.*

M.D., Colorado.

ANSWER.—It was unfortunate this woman had her uterus removed when she was only 23 years of age, but most likely this operation has nothing to do with the present disturbance. The patient has nymphomania; this is not related to the use of estrogens. The usual basis for this serious condition is a psychic disturbance; hence psychotherapy should be instituted without delay.

CESAREAN SECTION

To THE EDITOR:—*Is there any exception to the rule "Once a cesarean section, always a cesarean section?"*

Walter A. Landry, M.D., Chester, Pa.

ANSWER.—The dictum, "Once a cesarean section, always a cesarean section," is by no means universally followed. Several reports have been published dealing with cases in which vaginal delivery was carried out after previous cesarean section.

J. P. Greenhill in the 1949 "Year Book of Obstetrics and Gynecology," page 227, says, "Whenever a cesarean section is performed, the question arises: Shall a woman who has once had a cesarean section always have a cesarean section? Formerly I delivered many women through the vagina who had previously had cesarean sections. However, the risk from cesarean section is so slight that I do not believe it worthwhile to chance rupture of the uterus, regardless of what the indication was for the first operation. I therefore almost routinely perform a repeat cesarean section. Of course, if a baby is small in a subsequent pregnancy and the woman goes into labor spontaneously and if she is in a hospital where she can be watched carefully, labor may be permitted to proceed. But even under these conditions, I would feel ill at ease, despite the excellent results obtained by some obstetricians. One can never be certain that rupture will not take place, though rupture of the uterus during pregnancy is extremely rare after cervical cesarean section. On the other hand, after classic operation, rupture of the uterus at seven to nine months is not too uncommon. The death rate from rupture is extremely high, whereas that from repeat cesarean section is almost negligible, because most of these operations are elective and performed when the patient is in good condition."

DEAD FETUS

To THE EDITOR:—*A young bipara was delivered of a dead, slightly macerated fetus. Her first baby was normal, and there were no complications during her period of gestation. Her second pregnancy was equally uncomplicated. She went to full term; she felt violent fetal activity three days before the birth of this child and none afterward. The delivery was uneventful. Is it possible that this infant started to breathe in utero at the time she felt the violent fetal activity? On delivery there was discolored amniotic fluid coming from the lungs.*

M.D., Pennsylvania.

ANSWER.—In most cases, like the one described, it is not possible to determine the exact cause of death of the fetus even when an autopsy is performed on the macerated fetus. In a few instances there is separation of the placenta, but nearly always there is some external bleeding to indicate the condition. Furthermore, in such cases, when the placenta is delivered, some blood clots will be found attached to the maternal surface of the placenta. Discolored amniotic fluid is nearly always present when the fetus is macerated. The finding of amniotic fluid in the lungs or escaping from the lungs has no significance, because amniotic fluid can be aspirated into the lungs of normal babies owing to the intrauterine respiratory movements which most likely occur in all babies during their intrauterine existence.

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To THE EDITOR:—*The school board is contemplating using barnyard manure to fertilize the football field. What is the possibility of tetanus being contracted by the players?*

A. L. Delaney, M.D., Liberty, Texas.

ANSWER.—The use of manure on a football field is definitely contraindicated, in view of the high incidence of tetanus following contamination of skin injuries with the spores of Clostridium tetani contained in manure. Moreover, it would be desirable that all the players be immunized with tetanus toxoid in order that the possibility of their contracting clinical tetanus under all conditions of play be minimized.

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To the Editor:—*A 4 year old girl, has been well except for chickenpox and whooping cough at the age of 3 years and at five months, respectively. Birth weight was 7 pound 3 ounces (3,260 Gm.). Since the age of 1 year, the child has grown very little. Her present weight is 22 pounds (10 Kg.). Physical examination disclosed no abnormalities, and the child was mentally alert. Four repeated urinalyses have shown albumen (3 plus) and sugar (3 and 4 plus) with no acetone and normal specific gravity and miscroscopic findings. Fasting blood sugar was 92 mg. Medical advice was sought mainly because of the child's poor appetite. Please suggest further diagnostic procedure and treatment.*

M.D., New Mexico.

Answer.—A 4 year old child weighing only 22 pounds must be extremely short and have the general conformation of a dwarf. The height-weight-age tables of Bird T. Baldwin and Thomas D. Wood present the lowest weight for a female of 4 years and under 5 years as 25½ pounds (11.53 Kg.) with a height of 33 inches (83.82 cm.) Dwarfism may fall into a number of categories as (*a*) ateliosis, or true infantilism, characterized by childish skeletal, genital, and mental development, (*b*) primordial dwarfism, present at birth and with normal osseous, sex and mental development and (*c*) renal rickets or dwarfism, which is not true dwarfism but is due to impairment of bone growth from hyperparathyroidism. There are associated urinary disturbances with renal rickets, including glycosuria. Other types are achondroplastic dwarfism, cretinism from congenital hypothyroidism and endocrine dwarfism, particularly that due to hypopituitarism. Other causes of dwarfism, or retarded growth, are pancreatic deficiencies, sprue, celiac disease, encephalitis and various bone dystrophies.

The cause of the glycosuria with a fasting blood sugar within normal range (70-100 mg. per 100 cc.) may be diabetes mellitus. Renal diabetes, fright, excessive consumption of easily assimilable carbohydrates, renal dwarfism and pentosuria may be other causes of glycosuria. For differentiation, the type of sugar should be identified, and several glucose tolerance tests should be performed in case the curve suggests true diabetes.

Albuminuria may be due to various causes, among which are orthostatic albuminuria, which is symptomless; pyuria; nephritis; nephrosis; renal dwarfism, and Bence-Jones proteinuria.

The three major signs presented, dwarfism, glycosuria and albuminuria are all common to renal dwarfism. If the diagnosis of this condition can be established, nephritic therapy, large amounts of vitamins A and D, sufficient alkali, particularly potassium, and removal of a parathyroid tumor, if present, would constitute adequate treatment. If the diagnosis of diabetes mellitus is established, hospitalization with an attempt to control the disease by proper diet should be made before insulin therapy is instituted. The normal urinary specific gravity would make the diagnosis of nephritis or diabetes doubtful.

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Lewis W. Berry, M.D., Chelan, Wash.

Answer.—Both estrogen and testosterone can stop bleeding from a fibroid uterus temporarily. Likewise, enormous amounts of testosterone can produce a slight decrease in the size of fibromyomas, but this also is temporary. It is useless to employ endocrine therapy to reduce the size of a fibroid uterus, because the necessary doses are far beyond safety. In almost all instances in which any appreciable effect can be observed on a fibromyomatous uterus, signs of virilism appear. These include excessive hair growth on the face, change in voice and enlargement of the clitoris. Bleeding associated with a fibroid uterus does not arise in the myomas but comes from associated changes in the endometrium. In all instances of profuse or irregular bleeding, regardless of whether fibromyomas are present, cancer must be ruled out.

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To the Editor:—*A patient continually complains about gas formation in the intestines. He has had a complete examination, with negative results except for a tremendous number of Trichomonas in the stool. Years ago he spent a long time in a tuberculosis sanitarium. Could these Trichomonas become pathogenic? What would be the treatment? I have been giving him turpentine 0.6 cc. three times a day. The patient has no dysentery, but gas formation is often accompanied by unformed stools.* *M.D., Illinois.*

Answer.—The role of Trichomonas vaginalis or hominis as intestinal pathogens has not been clearly established. Usually, if a careful stool examination by a qualified observer is made on a patient with diarrhea or dysentery, some other cause is found. As yet no cyst forms of T. hominis have been discovered in solid stools.

Verified cases of intestinal infection due to Trichomonas vaginalis apparently have not been reported, and it is possible that the organism mentioned in this case is actually T. hominis, since these varieties are morphologically similar. The treatment of Trichomonas hominis infection is unsatisfactory; however, the most efficacious agents are diiodohydroxyquinoline (diodoquin®) and carbarsone as used in amebiasis. A trial of diiodohydroxyquinoline therapy would be of interest in the case described.

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Answer.—There are three ways of determining the difference between lactosuria and glycosuria. The tests for lactosuria are (1) the phenylhydrazine test (crystal test), (2) the Rubner (color test) and (3) the fermentation test. The technics of these tests may be found in books on laboratory procedures, for example, "Clinical Diagnosis by Laboratory Methods" by J. C. Todd and A. H. Sanford, and "Manual of Clinical Laboratory Methods" by O. E. Hepler.

The finding of sufficient lactose in the urine to produce a faint Benedict reaction occurs in about 1 to 2 per cent of pregnant women before the last six weeks of gestation. During the last six weeks of pregnancy the frequency of lactosuria is about 7 or 8 per cent. On the day before delivery the incidence is about 30 per cent. Of course, lactosuria is much commoner and more pronounced after delivery. During the first few days of the puerperium, the majority of women show lactosuria, often in large amounts. This fact must be taken into consideration when diabetic women are studied after delivery.

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Answer.—As a suitable ophthalmic ointment base aquaphor® with water is usually satisfactory. However, in many instances anhydrous bases are more suitable and are required with certain drugs commonly used for local application to the eye. Such drugs as penicillin and eserine will fit in this category. For this reason, a base consisting of 25 per cent wool fat, 50 per cent petrolatum and 25 per cent liquid petrolatum might be considered more suitable. This base has proper consistency and spreading action. In many instances aqueous bases are not desirable, since the liberation of the drug from the base is too rapid to accomplish suitable therapeusis. In these instances the base delineated above is more suitable.

between persons of the same sex and subjected to the same environmental pressures. Although a general impression exists that the incidence of duodenal ulcer in Negroes in the United States is significantly less than in the white race, this difference has become much less pronounced when environmental factors have been about the same.

BONE CYSTS

To the Editor:—*A 17 year old boy is 12 pounds (5 Kg.) overweight; his height is 70 inches (178 cm.), blood calcium 10.6 mg. and blood phosphorus 3.4 mg. X-ray reveals a normal pituitary; the lower ends of both femurs show small partly healed bone cysts and slight osteoporosis; the lower end of the right tibia shows a solitary, partly healed bone cyst. The diagnosis probably is hyperparathyroidism (von Recklinghausen), but the parathyroids are not palpable. Would use of calcium gluconate be advisable? A diet rich in calcium and phosphorus was given. What is the best treatment? How can one exclude a tumor or hyperplasia of the parathyroid?*

Jacob Aisenstat, M.D., New York.

This inquiry was referred to two authorities, whose respective replies follow.—Ed.

Answer.—With normal serum calcium and serum phosphorus levels, hyperparathyroidism is unlikely. There is nothing in the query to suggest that there is generalized demineralization of bone. One would have to consider polyostotic fibrous dysplasia. The most likely diagnosis from the facts at hand is neurofibromatosis with bone involvement. The lower ends of the femurs are apt to be involved in this condition. The same is true of the lower thirds of the tibias. The fact that the parathyroids are not palpable is of no significance in ruling out hyperparathyroidism. The treatment in this case depends on the diagnosis. The diagnosis would be strengthened if café au lait areas of pigmentation or subcutaneous neurofibromas could be demonstrated.

Answer.—One should make calcium balance studies in order to observe the excretion of calcium on an inadequate calcium intake. Concentration of calcium and phosphorus in serum appear to be within normal limits, but further studies should be made. Hyperparathyroidism may be present without a palpable tumor in the neck. Enlarged parathyroid glands may be found in the mediastinum or buried in the thyroid. Parathyroid tumors may be so small that they are difficult to palpate even though they are present in the usual location. Hyperparathyroidism may be associated with hyperplasia of the parathyroid glands without much enlargement. The development of bone cysts does not necessarily mean that hyperparathyroidism is present, but they do mean that every effort should be made to exclude this condition. If hyperfunction of the parathyroid glands is not present, it would seem logical to administer fairly large doses of calcium supplemented by vitamin D.

NYMPHOMANIA

To the Editor:—*A 30 year old married woman had a subtotal hysterectomy seven years ago. Three months ago she complained of irritability and hot flashes and was given estrogens with relief. She then complained that she had had excessive libido for six years. On cessation of treatment with estrogens, hot flashes returned but excessive libido remains. She states that full orgasm is reached at each intercourse and that she is forced to awaken her husband two to three times per night to satisfy her desire. She cannot go to dances and even avoids men on the street, as this produces painful pelvic congestion. Pelvic examination reveals no masses. Please help me with the etiology of this condition and treatment in this case.*

M.D., Colorado.

Answer.—It was unfortunate this woman had her uterus removed when she was only 23 years of age, but most likely this operation has nothing to do with the present disturbance. The patient has nymphomania; this is not related to the use of estrogens. The usual basis for this serious condition is a psychic disturbance; hence psychotherapy should be instituted without delay.

CESAREAN SECTION

To the Editor:—*Is there any exception to the rule "Once a cesarean section, always a cesarean section?"*

Walter A. Landry, M.D., Chester, Pa.

Answer.—The dictum, "Once a cesarean section, always a cesarean section," is by no means universally followed. Several reports have been published dealing with cases in which vaginal delivery was carried out after previous cesarean section.

J. P. Greenhill in the 1949 "Year Book of Obstetrics and Gynecology," page 227, says, "Whenever a cesarean section is performed, the question arises: Shall a woman who has once had a cesarean section always have a cesarean section? Formerly I delivered many women through the vagina who had previously had cesarean sections. However, the risk from cesarean section is so slight that I do not believe it worthwhile to chance rupture of the uterus, regardless of what the indication was for the first operation. I therefore almost routinely perform a repeat cesarean section. Of course, if a baby is small in a subsequent pregnancy and the woman goes into labor spontaneously and if she is in a hospital where she can be watched carefully, labor may be permitted to proceed. But even under these conditions, I would feel ill at ease, despite the excellent results obtained by some obstetricians. One can never be certain that rupture will not take place, though rupture of the uterus during pregnancy is extremely rare after cervical cesarean section. On the other hand, after classic operation, rupture of the uterus at seven to nine months is not too uncommon. The death rate from rupture is extremely high, whereas that from repeat cesarean section is almost negligible, because most of these operations are elective and performed when the patient is in good condition."

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To the Editor:—*A young bipara was delivered of a dead, slightly macerated fetus. Her first baby was normal, and there were no complications during her period of gestation. Her second pregnancy was equally uncomplicated. She went to full term; she felt violent fetal activity three days before the birth of this child and none afterward. The delivery was uneventful. Is it possible that this infant started to breathe in utero at the time she felt the violent fetal activity? On delivery there was discolored amniotic fluid coming from the lungs.*

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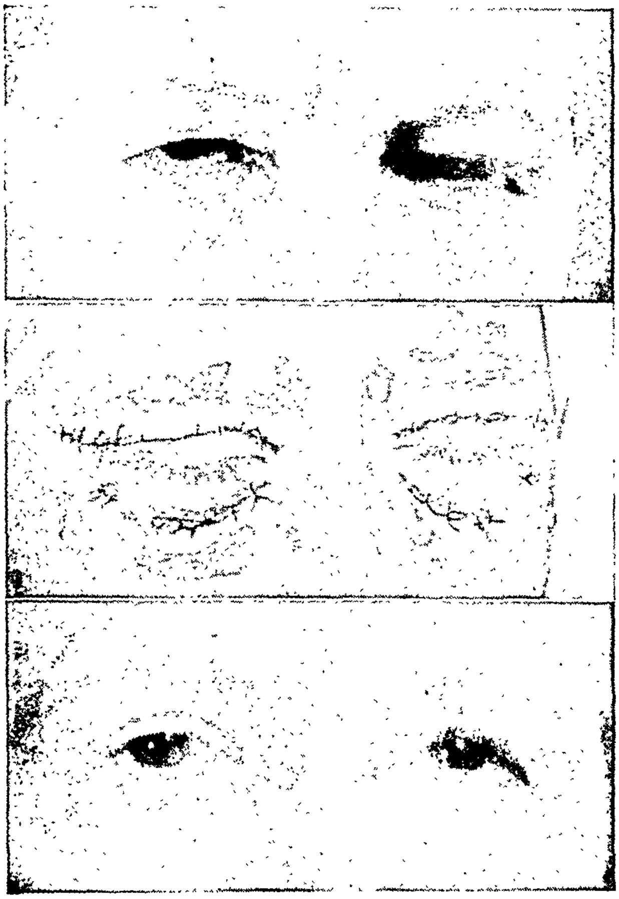
BAGS UNDER THE EYES

To the Editor:—*In* The Journal *of March 17 (page 858) Dr. Ursula Mandel asks for the cause of bags under the eyes and you give the exact replies of four authorities. All four of them may be correct in about one case out of a thousand. In the other 999, the cause is a familial tendency to localized lipodystrophy, with resultant partial herniation of encapsulated fat from within the intraorbital areas into the loose conjunctival tissue, occurring even in "teen agers."*

None of the authorities are quoting a remedy or curative procedure. Yet the cure is simple, direct and permanent. It consists of surgical removal of that amount of fat that is deemed excessive. Plastic surgeons interested in this phase do it regularly. The accompanying photographs illustrate the bagginess complained of (top), immediate postoperative display of fat overlying the area from which it was removed from upper and lower eyelids (center) and the results some weeks postoperatively (bottom).



H. O. Barnes, M.D.,
727 West Seventh Street,
Los Angeles 17.

To the Editor:—*In* The Journal *March 17, 1951, in Queries and Minor Notes, there appeared answers to the following question: "What is the cause of 'bags under the eyes,' which often occurs in patients with no kidney trouble or other known causes of the unsightly condition?"*

The Journal *stated, "This inquiry was referred to four authorities, whose respective replies follow." I was surprised to find clinical conditions listed, none of which actually and precisely answered the inquiry. In my practice as a plastic surgeon, I encounter this clinical state often. The "bags under the eyes" are not due to "edema," "muscle tone," "vasomotor states," "allergic responses," "familial traits," "atrophic changes in the epidermis or subcutaneous tissues." They are due to the presence of semiencapsulated periorbital adipose tissue which has protruded through a hiatus in the tarso-orbital fascia and can occur at any age, not only in elderly persons. The "adipose sac" varies in size, depending on whether or not the fat pad has become incarcerated. It is for this reason that daily changes, and changes throughout the day, in the size of these "bags" are often observed by the patients themselves.*

I have referred to this condition as "infraorbital adipocele"; similarly, "supraorbital adipocele" occurs. For 20 years I have removed "bags under the eyes," of the type described above, by means of the following surgical procedure, which I have designated "tarso-orbital fasciorrhaphy."

Starting at the inner canthus, I make an incision through the skin parallel with and about 1 to 1.5 mm. below the margin of the lower lid. This is extended to the outer canthus and continues for about 1 cm. lateralward, being placed in one of the natural laugh lines to minimize the scar. The skin is then undermined to about the level of the lower bony border of the orbital cavity. The fibers of the orbicularis oculi are then separated just above this level. As soon as this is done, a mass of semiencapsulated adipose tissue bulges forward through a herniation in the tarso-orbital fascia. This herniation is then enlarged, and all the protruding fat is excised. The tarso-orbital fascia is then imbricated with two or three C silk sutures. The redundant skin is then drawn up over the lid margin and the excess removed. Starting at the inner canthus, I unite the wound margins with a continuous C silk suture. Some trimming of the skin will be necessary at the outer canthus to insure a smooth union. In my experience, this plastic surgical procedure completely and permanently remedies this defect.

Harold M. Holden, D.D.S., M.D.,
520 S. San Vicente Blvd., Los Angeles 48.

SPERMATOZOA AND VAGINAL ACIDITY

To the Editor:—*In reference to a Rhode Island physician's question, "Is it rare for pregnancy to result from a deposition of sperm on the vulva without intromission?"* (J. A. M. A. **145:**59 *[Jan. 6] 1951). I should like to say that it is not only extremely rare but very likely impossible. The three instances of impregnation, of two married women and an unmarried girl, quoted from "A Text-book of Obstetrics" by Barton Cooke Herst, submitted by Dr. Walter A. Landry, do not prove anything. There are many cases of unruptured hymens after complete intromission and according to Williams (Obstetrics, ed. 5, New York, D. Appleton-Century Company, Inc., 1923). "In rare instances the injuries resulting from childbirth are extremely slight, and very exceptionally are entirely lacking." Elsewhere, however, Williams states, "Some years ago I saw a patient in whom conception had occurred through a hymen which presented only a pin-point opening. . . ." With respect to all cases without intromission, and even this last case mentioned by Williams, it is my conviction that at the time of ejaculation the external urinary meatus (opening of the fossa navicularis of the penis) is in direct apposition with the hymeneal opening and that semen is thus forced into the vagina itself.*

G. Lombard Kelly, M.D.,
President and Professor of Anatomy,
Medical College of Georgia.
Augusta, Ga.

GANGLION ON WRIST

To the Editor:—*Recently in Queries and Minor Notes, Dr. Bernard Weiss, New York, inquired about the treatment of ganglion of the wrist and requested suggestions as to nonsurgical treatment. Your answer failed to mention that treatment with x-rays is successful in a high percentage of cases. The only drawback is that it leaves a small area of increased pigmentation at the site of the ganglion. In many persons this disappears; in others it does not. I see many patients with this condition, and I have operated on only two in the last five or six years.*

Duncan C. McKeever, M.D.,
836 Bankers Mortgage Bldg.,
Houston 2, Texas.

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TREATMENT OF SPONTANEOUS SUBARACHNOID HEMORRHAGE

Lester A. Mount, M.D., New York

Spontaneous subarachnoid hemorrhage is the nontraumatic extravasation of blood into the subarachnoid space. It is an episode in the course of an intracranial process and is not a disease entity. It is characterized, as a rule, by the sudden onset of severe headache, usually generalized, but most intense in the suboccipital or frontal region; vomiting; collapse, and coma in many instances. Stiffness of the neck then develops, and the patient may have other symptoms and signs due to pressure on adjacent structures. The commonest of these are pain on one side in the temporal or frontal region, double vision and drooping of one eyelid. These findings, of course, are the result of pressure on the fifth and third cranial nerves. There may be mental changes or abnormalities in strength, coordination, reflexes, sensation or functions of other cranial nerves. On the other hand, there may be no focal neurological signs or symptoms at all. Nuchal rigidity, a postive Kernig sign and bloody cerebrospinal fluid are constant findings. The introduction of the lumbar puncture by Quincke[1] in 1891 made the diagnosis easier.

The cause of spontaneous subarachnoid hemorrhage is the rupture of an intracranial aneurysm, either saccular or arteriovenous, in the great majority of cases. In 1765, Biumi[2] published the first report of a subarachnoid hemorrhage due to the rupture of an intracranial aneurysm. The aneurysm may be missed in a routine postmortem examination because, in the words of William Gull,[3] who described this specific point in 1859, "Recent coagula may so imbed and conceal it that, unless strictly looked for, it will not be found for the sac is often small and thin and transparent." Intracranial aneurysms are the result of congenital defects in the arterial walls, oftenest in the circle of Willis, septic or sterile emboli, arteriosclerosis or a combination of congenital defects and arteriosclerosis.[4] Subarachnoid hemorrhage from a brain tumor or from a sclerotic artery occurs infrequently, and the subarachnoid bleeding which sometimes occurs in blood dyscrasias, Hodgkin's disease, acute hemorrhagic encephalitis and acute glomerulonephritis is usually not great in amount.

Hemorrhage into the subarachnoid space may occur at any age, but it is commonest in the third, fourth, fifth and sixth decades of life. There is no significant sex difference. According to Martland,[5] 2 per cent of sudden deaths from natural causes are the result of spontaneous subarachnoid hemorrhage. Moritz and Zamcheck,[6] in a series of 1,000 cases of sudden and unexpected death in young soldiers, found that 6.9 per cent were due to hemorrhage from a ruptured intracranial aneurysm.

The index to definitive treatment is an accurate diagnosis both as to the location and as to the type of the pathological process. A roentgenogram of the skull may show a curvilinear streak, erosion of one side of the sella turcica, sharpening of one anterior clinoid process or shift of the pineal gland. The electroencephalogram may reveal focal abnormalities, and the visual fields may give some indication of the side of the lesion. Relief of headache by percutaneous occlusion of one carotid artery and not of the other is strongly suggestive of the side of the aneurysm.[7] However, none of these signs is sufficient to indicate the best method of treatment. With every patient under the age of 60 who has no specific contraindications, the percutaneous method of arteriography should be carried out early, usually between the seventh and the tenth day after the hemorrhage. Arteriography is also used in selected cases of

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From the Department of Neurological Surgery, Columbia University College of Physicians and Surgeons, and the Neurological Institute of New York. Members of the medical and surgical staffs of the Columbia-Presbyterian Medical Center permitted me to include their cases in this report.

[1] Quincke, H. I.: Die Lumbalpunktion des Hydrocephalus, Berl. klin. Wchnschr. **28**: 929 and 965, 1891.

[2] Biumi, F.: Observationes Anatomicae, Scholiis Illustratae, Mediolani, 1765.

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[5] Martland, H. S.: Spontaneous Subarachnoid Hemorrhage and Congenital Berry Aneurysms of Circle of Willis, Am. J. Surg. **43**: 10, 1939.

[6] Moritz, A. R., and Zamcheck, N.: Sudden and Unexpected Deaths of Young Soldiers: Diseases Responsible for Such Deaths in World War II, Arch. Path. **42**: 459 (Nov.) 1946.

[7] Hurteau, E. F.: Subarachnoid Hemorrhage, J. A. M. A. **142**: 988 (April 1) 1950.

patients over the age of 60. If necessary, both carotid arteries and one vertebral artery are injected to outline the aneurysm, and hence to dictate the best method of therapy. In fact, it is best to do bilateral carotid arteriograms to demonstrate the anomalies in distribution of the collateral circulation and to reveal multiple aneurysms, which are present in 10 per cent of the cases. The Matas test, compression of the carotid artery for 10 minutes and tests for sensitivity to iodopyracet (diodrast®) must be performed before the arteriographic study is done. Local and thiopental (pentothal®) sodium anesthesia is used unless there is a contraindication. Under thiopental anesthesia the patient is relaxed and hence is less likely to have more hemorrhage. He does not move when the iodopyracet is injected; so the roentgenograms are better. Thorotrast® (colloidal thorium dioxide) is used only when sensitivity to iodopyracet or severe arteriosclerosis exists. When thorotrast® is injected, the open method of arteriography is used.

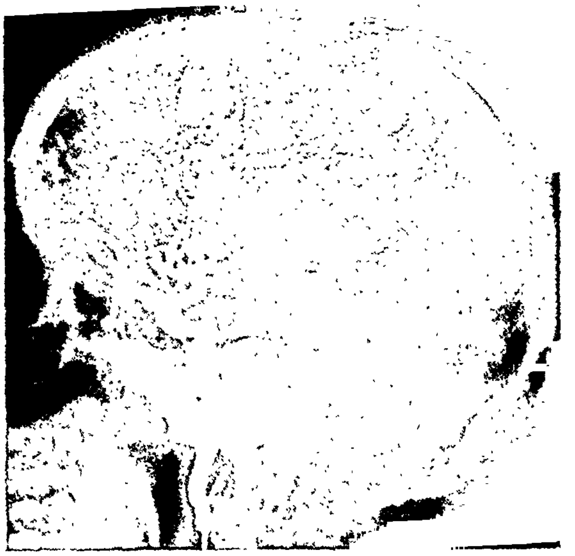

Fig. 1.—Lateral arteriogram showing arteriovenous aneurysm of the right frontal lobe. Arterial supply was from the anterior cerebral artery.

Surgical therapy consists in the direct intracranial approach to the aneurysm or in reduction of pressure and pulsation within the aneurysm by ligation of the arteries in the neck which supply the blood to the aneurysm. In order that the arteries in the neck may be safely ligated, there must be a sufficient amount of collateral circulation. An effort is made to determine this by carotid occlusion for 30 minutes. The vertebral artery cannot be satisfactorily compressed without exposing the artery, but in every case ligation is performed with local anesthesia. The patient is constantly questioned regarding symptoms; and strength, sensation and reflexes are checked at five minute intervals for the first half-hour and at 30 minute intervals thereafter for the first 24 hours.

Procedures in intracranial surgical therapy are removal of the aneurysm, trapping the aneurysm by applying clips to the artery on either side or by applying clips to the internal carotid artery in the neck and intracranially, clipping the neck of the sac, packing muscle around the outside of the wall of the aneurysm, opening the aneurysm and packing the cavity with muscle, and strategic clipping in some cases of arteriovenous aneurysm.

Every case is judged on its own merits. A direct intracranial attack on the aneurysm is the method of choice if the arteriogram demonstrates an aneurysm with a neck around which a clip may be applied, an aneurysm which can be removed or trapped by applying clips on either side or one which can be opened and the cavity filled with muscle. Packing muscle around the outside of the aneurysm to produce reinforcement of its wall apparently has some merit, at least in the cases reported, but the principles on which such treatment is based are not so good as they are in the other methods. With arteriovenous aneurysms complete removal is the method of choice, but when the aneurysm is in a vital area strategic clipping of contributing arteries or ligation in the neck is the method of choice. A large aneurysm at the junction of the anterior and middle cerebral arteries, or of the middle cerebral artery very close to its origin, is best treated by ligation in the neck. One anterior cerebral artery at or beyond the anterior communicating artery can be ligated safely in most instances. Hence, an aneurysm of the anterior cerebral artery beyond the anterior communicating artery can be removed or clipped and left in place.

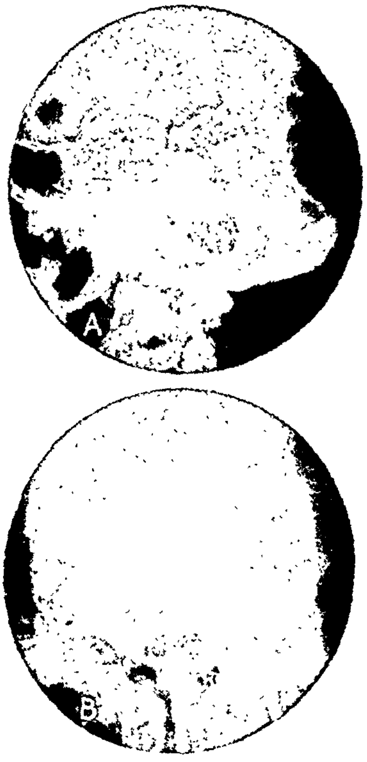

Fig. 2.—Anteroposterior and lateral arteriograms showing arteriovenous aneurysm in the right cerebellar region. Arterial supply was from the right anterior inferior cerebellar artery, pontile arteries and posterior inferior cerebellar arteries.

It is important to emphasize that in order to approach an aneurysm intracranially there must be facilities for an arterial transfusion, by means of which blood can be replaced as rapidly as it is lost, and a double suction apparatus to remove the blood quickly should the aneurysm rupture during its exposure, so that the bleeding point can be visualized and treated.

As many know, I am compiling an aneurysm registry, and neurosurgeons all over the United States and Canada are contributing their cases, in an attempt to establish basic indications for the various methods of therapy. The illustrative cases presented in table 1 are all of patients treated at the Neurological Institute of New York.

The mortality rate for conservatively treated patients is high. It was 48 per cent in 752 conservatively treated patients, which comprises the previously reported cases of spontaneous subarachnoid hemorrhage [8] and the present cases but excludes the series in which purely autopsy material was used (table 2).

Actually, the mortality rate would be even higher were the patients followed long enough. In 1893 Gowers [9] said:

> If the diagnosis of an intracranial aneurysm is certain, the prognosis is extremely grave. The probability that death will result is very great, and the duration of life most uncertain, since it is impossible to say how near or how distant may be the fatal rupture.

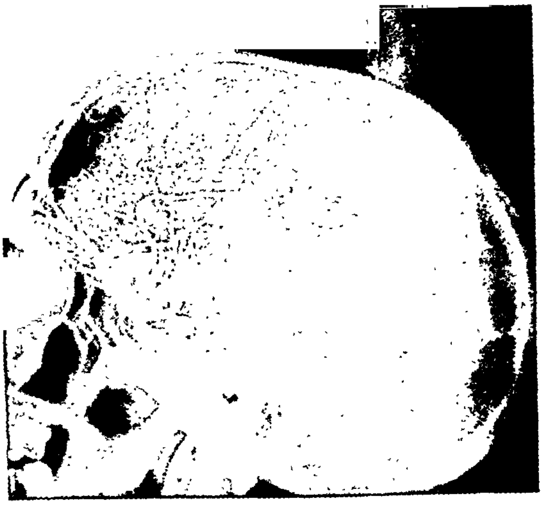

Fig. 3.—A lateral arteriogram showing a saccula aneurysm of the right posterior communicating artery.

Rosen and Kaufmann [10] reported a recurrent hemorrhage after 27 years, and Strully, in a personal communication, reported one after 25 years. There is, then, a constant danger of further hemorrhage and death in any patient who has had one hemorrhage.

The mortality rate for the 469 operatively treated patients was 14 per cent. This is the average of the reported cases,[11] including our own (table 3).

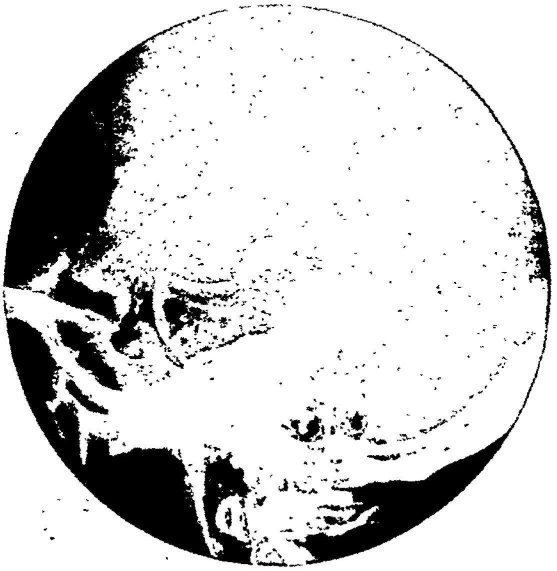

Fig. 4.—A lateral arteriogram showing a saccular aneurysm of the left posterior cerebral artery.

The mortality rate was 11 per cent for 77 consecutive patients with intracranial aneurysms treated by operation at the Neurological Institute. Further analysis revealed that the condition of 71 per cent (55 patients) was improved; that of 14 per cent (10 patients) was unimproved, and that of 4 per cent (3 patients) was worse. Twenty-one patients had an intracranial operation. Of

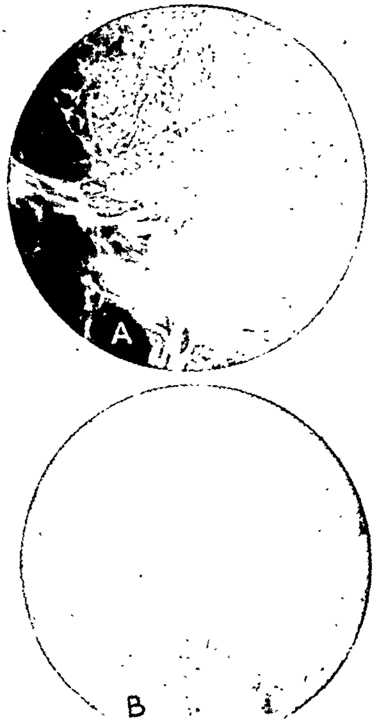

Fig. 5.—An anteroposterior and a lateral arteriogram showing an aneurysm of the anterior communicating artery.

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TABLE 1.—*Cases Illustrative of Spontaneous Subarachnoid Hemorrhage Due to Intracranial Aneurysms*

Case No.	Patient Age, Yr.	Symptoms	No. of Hemorrhages	Length of History	Signs	Arteriogram	Treatment	Results	Length of Follow-Up Observation
					Arteriovenous Aneurysms				
1 (fig. 1)	V. W. 19	Frontal headaches; vomiting; convulsions; coma	1	3 mo.	Weakness of left extremities; papilledema with hemorrhages	Right frontal arteriovenous aneurysm; arterial supply chiefly from anterior cerebral artery	Block incision	Condition improved; one convulsion when anticonvulsant medication was decreased, but none since	1 yr.
2 (fig. 2)	R. B. 28	Awkwardness of right extremities; diplopia; vomiting; occipital headaches	2	3 yr.	Right cerebellar; no papilledema	Arteriovenous aneurysm; arterial supply from right anterior inferior cerebellar artery, pontile arteries and posterior inferior cerebellar artery	Strategic clipping of contributing branches and ligation of right vertebral artery	Improvement	2½ yr.
					Aneurysms of Internal Carotid Artery				
3	A. C. 55	Sudden onset of lacrimation of left eye, severe throbbing pain above left eye and in left temporal region, drooping of left eyelid, inability to move left eye, nausea and vomiting	0	1 wk.	Blood pressure 170/94; cataract in left eye; complete ophthalmoplegia on left; ptosis on left	Saccular aneurysm of cavernous portion of left internal carotid artery, partly thrombosed	Multiple ligation in three stages: (1) left common carotid artery, (2) left internal carotid artery in neck, (3) left internal carotid artery intracranially	Improvement	6 mo.
4	F. M. 50	Sudden onset of pain in and around right eye, spreading to top and back of head, back and down back of legs; drooping of right upper eyelid; blurring of vision; drowsiness	1	2 days	Blood pressure 180/90; ptosis right; dilatation of right pupil; absence of pupillary reaction to light on right; paralysis of all extraocular muscles; decreased corneal reflex bilaterally; slight weakness of left grip; equivocal Babinski and Chadock signs on left; mild nuchal rigidity; positive Kernig sign	Saccular aneurysm of right internal carotid artery	Right common artery ligated while aneurysm still bleeding; 1 wk. later external carotid artery ligated; ligation of internal carotid artery planned, but vessel partly thrombosed	Improvement	2 yr.
					Aneurysms of Posterior Communicating Artery				
5 (fig. 3)	G. B. 34	Sudden onset of headache, pain in right frontal and temporal regions, ptosis of right eye, diplopia	0	3 mo.	Nasal hemianopsia in right eye; complete paralysis of muscles supplied by right third and fourth nerves; primary optic atrophy, right	Saccular aneurysm of right posterior communicating artery	Clipping of neck of aneurysm	Condition improved	2 yr.
					Aneurysm of Posterior Cerebral Artery				
6 (fig. 4)	E. S. 24	Recurring frontal headaches all of life; sudden onset of dizziness and fulness in head; a few hours later sudden loss of consciousness, tonic seizure; stiffness of neck, severe occipital headache, nausea and vomiting on regaining consciousness; three similar episodes within next four weeks	4	4 wk.	Pregnancy of 7 mo.; apathy; fulness of veins of retina; bilateral paresis of external rectus muscles; decreased reflexes, with left greater than right; positive Babinski sign on left; left central facial paresis; mild nuchal rigidity	Saccular aneurysm of left posterior cerebral artery	During 5th hemorrhage, with patient in opisthotonos, clip placed on posterior cerebral artery at site of origin of aneurysm; bleeding stopped; large clot evacuated from temporal lobe	Patient died 10 days postoperatively *	....
					Aneurysm of Anterior Cerebral Artery				
7	A. S. 55	Sudden onset of suboccipital and bitemporal hearache with transient inability to see; unsteadiness in walking; confusion	1	4 days	Fine tremor of hands; papilledema; right central facial paresis; stiffness of neck	Saccular aneurysm of left anterior cerebral artery	Ligation of left internal carotid artery; anterior cerebral artery clipped on either side of aneurysm	Condition improved	1 yr.
					Aneurysm of Anterior Communicating Artery				
8 (fig. 5)	J. S. 32	Sudden onset of severe headache, nausea and vomiting, followed by unconsciousness of 12 days' duration; daily morning headaches since then	1	2 mo.	Slight weakness of left upper extremity; slight dysmetria on left; slight hyperreflexia of right lower extremity; blurring of nasal margin of optic disks; right central facial paresis; positive Matas reaction bilaterally	Saccular aneurysm of anterior communicating artery	Incision into aneurysm and cavity packed full of muscle; cauterization of muscle to wall of aneurysm to hold it in place	Condition improved and patient asymptomatic	1 yr.

* Autopsy revealed compression of left hippocampal gyrus and tectum and tegmentum of midbrain; rupture of aneurysm into left temporal lobe and subarachnoid space; encephalomalacia, recent, of right and left fusiform and lingual gyri and pons; hemorrhagic pulmonary edema, bilateral; no hemorrhage from aneurysm after operation.

these, 86 per cent (17 patients) showed improvement, and 14 per cent (4 patients) died. Of the four who died, three were operated on when comatose and actively bleeding, in a desperate last resort to save the patient's life.

It is clear that the mortality rate of 14 per cent for the surgically treated patients is substantially better than the mortality rate of 48 per cent for the conservatively treated ones. It is therefore advisable to outline clearly the pathological process by arteriography and to perform the surgical treatment indicated.

Table 2.—*Data on Medically Treated Patients*

Author	No. of Patients	No. of Deaths
Wolf, Goodell, Wolff[8a]	46	18
Magee[8b]	150	82
Hamby[8c]	130	81
Ohler and Hurwitz[8d]	24	11
Strauss, Globus and Ginsburg[8e]	34	14
Richardson and Hyland[8f]	118	61
Sands[8g]	120	41
Mount	130	52
Total	752	360

Mortality rate 48%

Table 3.—*Data on Surgically Treated Patients*

Author	No. of Patients	No. of Deaths
Jaeger[11a]	31	5
Falconer[11b]	40	5
Jefferson[11c]	50	3
Olivecrona[11d]	47	5
Dreszler[11e]	1	0
Cone[11f]	1	0
Sugar and Tinsley[11g]	1	0
Fincher[11h]	1	0
Greenwood[11i]	1	0
Dott[11j]	2	0
Poppen[11k]	35	7
Botsford[11l]	3	0
Hurteau[11m]	1	0
Schwartz[11n]	2	0
Murphy[11o]	5	0
Dandy[11p]	30	9
Walsh and Love[11q]	1	0
Vincent and others[11r]	2	0
McConnell[11s]	1	0
German[11t]	1	0
Woodhall[11u]	3	1
Christianson and Totten[11v]	1	0
Guthkelch[11w]	1	1
Schorstein[11x]	60	8
Jaeger[11y]	2	2
Krayenbühl[11z]	35	6
Voris[11a']	3	0
Alpers and Ryan[11b']	2	1
Alpers and Schlezinger[11c']	6	2
Wechsler and Gross[11d']	8	2
Norlen[11e']	10	0
Schwartz[11f']	1	0
Oscherwitz and Davidoff[11g']	1	0
Turner[11h']	1	0
Elvidge and Feindel[11i']	2	0
Penfield and Erickson[11j']	1	..
Mount	77	9
Total	469	66

Mortality rate 14%

SUMMARY

1. Spontaneous subarachnoid hemorrhage accounts for death in 2 per cent of the patients who die suddenly of natural causes.

2. It is caused by the rupture of an intracranial aneurysm in the great majority of patients.

3. It may occur at any age, but it is commonest in the third, fourth, fifth and sixth decades of life.

4. It is characterized by the sudden onset of severe headache, stiffness of the neck, vomiting, collapse and, in many instances, coma.

5. *Arteriography* is essential to establish the diagnosis, both as to the location and as to the exact type of pathological process. Only then can definitive treatment be undertaken.

6. The mortality rate was 48 per cent for the medically treated patients. This represents the average mortality rate for 752 cases, including several large series previously reported and the present series.

7. The mortality rate was 14 per cent for the surgically treated patients. This represents the average mortality rate for 469 cases, including the reported cases and our own.

8. When it is possible, direct intracranial surgical treatment is the best method of therapy.

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ABSTRACT OF DISCUSSION

Dr. Bernard J. Alpers, Philadelphia: Dr. Mount has demonstrated clearly what has now become quite evident, that cerebral aneurysms are amenable to operation and that operation effectively reduces the mortality by the prevention of rupture of the aneurysm. The statistical figures favor strongly the surgical treatment of the disorder, whether it be by extracranial or by intracranial approach or by a combination of the two. It is important to recognize, however, that, while operation may prevent rupture of the aneurysm, it does not necessarily result in recession of the symptoms. The headache is usually corrected, but the ocular palsies, visual disturbances, hemipareses and other symptoms may persist despite operation. There are relatively few patients, however, who would not put up with a persistent unilateral ophthalmoplegia in exchange for absence of headache and the threat of rupture of the aneurysm. It would be valuable to know whether Dr. Mount has any statistics concerning the frequency of disappearance of symptoms after operation. Despite an increasing recognition of the aneurysm syndrome, the unfortunate position of diagnosing the aneurysm after rupture is too frequent. Once rupture with subarachnoid bleeding occurs, the problem becomes an emergency. It is desirable, therefore, to make the diagnosis before subarachnoid hemorrhage develops. The diagnosis should be considered in cases with recurrent unilateral headache associated with or followed by cranial nerve paralyses of one type or another. Most frequently the optic and ocular nerves are involved because of the greater concentration in the anterior part of the circle of Willis, but it must not be forgotten that any of the cranial nerves may be affected and that hemiplegias may develop with aneurysms of the middle cerebral artery. Once the diagnosis is suspected, it may be made readily by arteriogram, though I have not regarded arteriography as a necessary routine procedure. As Dandy pointed out, the diagnosis may be established without arteriographic studies. While the arteriogram will disclose the larger aneurysms and vascular anomolies, it fails to reveal the miliary aneurysms associated with spontaneous subarachnoid hemorrhage. Unfortunately, these aneurysms, unlike the larger variety, fail to give warning of their presence until they rupture, and, while some patients die in their first attack, many patients survive and live in fear of recurrent rupture. Possibly the arteriogram may offer some means of detecting them, but visualization of all the main branches of the cerebral circulation bilaterally is essential. It is a goal worth seeking, and it seems to be one of the most important of the unsolved problems of aneurysm.

Dr. Tracy J. Putnam, Beverly Hills, Calif.: No doubt this condition is less benign than was formerly taught. It is important to make a definite diagnosis as promptly as possible and initiate appropriate treatment. However, several important questions remain unanswered by the statistical studies as yet published. First, how far is it wise to push the surgical attack? Actual ligation and excision of an aneurysm should produce a permanent cure, but it is an operation necessarily attended with considerable risk. In some cases, long-continued relief follows ligation of the internal carotid artery, a procedure which should entail a negligible mortality rate. What proportion of patients are subject to relapse after a carotid ligation? Do we know what procedure offers the best compromise between the two extremes? I have adopted the policy of routine carotid ligation as an immediate step, followed by further intracranial procedures only as indicated. Of two minor technical points which I have found useful, one is to practice repeated drainage of spinal fluid, once the carotid ligation has been performed. This shortens convalescence and perhaps minimizes cortical damage. The second is to use a strip of polyethylene film to ligate the common carotid artery and a strip of cellophane to narrow the lumen of the internal carotid artery, at the time of the arteriographic study or subsequent surgical procedure. This polyethylene film may be removed quickly if hemiparesis develops, while the presence of the band of cellophane gradually chokes off the circulation in the internal carotid artery.

Dr. Harold C. Voris, Chicago: Dr. Mount has clearly shown the advantage of surgical treatment in these cases. The statistical difference in favor of surgical treatment is even more striking when one considers that the data in a large number of the cases that he has analyzed were presented him by neurosurgeons who at the time the treatment was carried out had relatively little operative experience with these lesions. The increasing use of angiography now provides a means, not only of localizing the aneurysm accurately, but of determining the adequacy of the circle of Willis, that is, the adequacy of the collateral circulation. The establishment of those two points is essential before any planned attack on an aneurysm is carried out. I believe that in the next few years it will be possible for many neurosurgeons, with the aid of angiography and with the newer methods of preventing the complication of thrombosis after ligation of the carotid artery to improve greatly the statistics reported to date. As Dr. Mount points out, mortality of 11 per cent in the series of cases from his institution is considerably less than that for the group as a whole. James Poppen reported recently a series of 143 cases, with a mortality rate of only 7 per cent. Even those figures, I think, will eventually be improved on.

Dr. Walter F. Schaller, San Francisco: The nonoperative mortality as given by the author is much higher than that in my own experience, which is admittedly slight, as compared with the total number of reported cases. I observed a young man in a country town, undoubtedly suffering from a subarachnoid hemorrhage, whose condition was so serious as to court danger either on his removal to a city hospital or on his undergoing angiographic study. He is now greatly improved. Of course, it is known there is danger of a subsequent fatal attack—had this man been operated on and survived, he might still be in the eventual mortality group, as correlated with the long statistical period covered by the nonsurgical cases. I should like to ask Dr. Mount, therefore, to elaborate on his statistical data, particularly as to the time elapsed since operation, and to state whether the nonoperative group includes patients not referred to the surgical clinic, including those with less severe conditions, often first mistakenly diagnosed as apoplexy.

Dr. Lester A. Mount, New York: Regarding the frequency of the disappearance of symptoms after operation, I cannot quote the exact statistics. Most of the patients did have some residuals secondary to the hemorrhage. In answer to Dr. Putnam's question, "How wise do you feel it is to pursue the surgical attack?" Every case must be judged on its own merits. I believe some form of surgical attack is feasible in the great percentage of cases, either the direct intracranial approach to the aneurysm or ligation in the neck. If nothing is done, most of the patients will have another hemorrhage. As mentioned in the paper, a second, fatal hemorrhage has been reported as long as 27 years after the first hemorrhage had occurred. In answer to Dr. Schaller's question, the mortality rate was 48 per cent for over 700 patients without any operative therapy. Of the surgically treated patients, three of those attacked intracranially were actively bleeding and would obviously die unless something was done for them. These three did die. Of course, had we refused to operate on those patients, our mortality rate would have been even lower. We are operating on patients early, while they are actively bleeding, either by ligation in the neck or by an intracranial approach, depending on the results of the arteriography. I am interested in what will happen to those patients who have had a subarachnoid hemorrhage and in whom complete arteriographic studies of both carotid arteries and of the vertebral artery have shown no aneurysm. Do these patients have a better prognosis? That is something we can answer only with the passage of time. It is recommended that the intracranial approach be used whenever possible. Of our patients who had ligation in the neck alone, two have subsequently hemorrhaged and died. I find that many other neurosurgeons have had a similar experience. I therefore recommend that the intracranial approach be used whenever feasible.

Knowledge.—The best part of our knowledge is that which teaches us where knowledge leaves off and ignorance begins. Nothing more clearly separates a vulgar from a superior mind, than the confusion in the first between the little that it truly knows, on the one hand, and what it half knows and what it thinks it knows on the other.—Oliver Wendell Holmes, Medical Essays, Boston, Houghton, Mifflin and Company, 1883.

FRACTURES OF THE ELBOW IN CHILDREN

Walter P. Blount, M.D., Irwin Schulz, M.D.
and
Robert H. Cassidy, M.D., Milwaukee

Fractures about the elbow in children are different from those in adults. Bone growth after the fracture is responsible for the difference. Continued growth is important for several reasons: A fracture increases the blood supply to the bone, which accelerates the rate of growth; this tends to equalize shortness from overriding. Growth will correct some angular deformities near the ends of long bones. However, a fracture involving an epiphyseal cartilage may retard growth so as to cause shortening or angular deformity.

Fractures at the elbow joint are very common in children. They follow patterns so remarkably constant that they may be discussed in groups. While each fracture must be evaluated and treated individually, certain general rules may be established.

In children, fractures may be well treated by simple conservative means more frequently than in adults. The exceptions to this are almost all fractures at the elbow joint. Fractures of the lateral condyle, the medial epicondyle, and the neck of the radius are usually best treated by open reduction. All other fractures about the elbow can be treated satisfactorily by traction or closed reduction.

FRACTURES THAT CAN BE TREATED WITHOUT OPERATION

Supracondylar (transcondylar) fractures, which comprised 268, or 60%, of 453 consecutive elbow fractures, can be treated without operation. A transverse fracture line through the olecranon fossa is produced by hyperextension of the elbow, usually from a fall on the outstretched hand. The fracture is either incomplete and with anterior angulation or complete with posterior displacement of the distal fragment and overriding. If the fracture is seen promptly, an excellent result will usually be obtained by closed reduction and immobilization in flexion (fig. 1). If reduction is delayed and swelling has appeared, it is often better to apply traction (fig. 2).

Less than 1% of supracondylar fractures are of the reversed or flexion type. These are produced by a fall on the flexed elbow, with resultant anterior displacement of the distal fragment. This flexion fracture should be reduced and immobilized in sufficient extension to prevent the recurrence of the angular deformity. It is a mistake to confuse the treatment of this fracture with that of the commoner extension type.

The risk of complication is great in all complete supracondylar fractures. Impairment of circulation and nerve injury depend on the initial trauma and the subsequent handling. The greatest danger is Volkmann's ischemia. Prompt, gentle reduction and immobilization without constriction offer the best defense. Supracondylar fractures are treated as emergencies.[1]

Many arguments are offered for the open reduction of supracondylar fractures. If there is ever a real indication in the absence of compounding, it is extremely rare. With gentleness and patience, a good result may be obtained without operation. The use of internal fixation for the supracondylar fracture that slips off after closed reduction is a sign of impatience on the part of the surgeon. Suspension of the forearm with suitable traction for a week or 10 days will allow the swelling to subside.[2] Manipulation under anesthesia and fixation in flexion will then be successful.

Comminuted supracondylar fractures and "T" fractures occur rarely in children. If seen promptly, they can be treated most satisfactorily by manipulation under anesthesia and the application of a hanging cast (fig. 8). It is amazing to see a confused jumble of fragments fall into position when traction is combined with gentle molding. A critical analysis of the end results argues for the closed methods; there is too often permanent limitation of motion after operation.

Before reduction of any elbow fracture, careful examination should establish the normal function of the motor nerves controlling the hand and the condition of the radial pulse. If the pulse is present, it should not be obliterated by the manipulative reduction. If absent before manipulation, it may be disregarded if the capillary circulation remains good. An absent radial pulse per se is not an indication for open reduction.

The mechanics of closed reduction are simple (fig. 1). While countertraction is made in the axilla, straight traction is made on the supinated wrist with one of the operator's hands. The other hand grips the arm just above the elbow with the fingers over the biceps. The thumb lies against the distal end of the proximal fragment while hyperextension is made to disengage the fragments. Malrotation of the fragment is corrected by varying the degree of supination. Lateral displacement is corrected by molding the fragments before correcting the posterior displacement. Then the thumb slips down over the tip of the olecranon, forcing the distal fragment forward into position. Counterpressure is supplied by the fingers. The elbow is flexed only after complete reduction of the fracture. The position is checked at once by roentgenograms. If it is not satisfactory, a second reduction may be tried. Traction in bed is preferable to the insult of many manipulations.

Fixation in flexion may be variously achieved. The simplest and surest method is to join a collar and cuff by an inelastic bandage (fig. 1 *D*). A light compression dressing about the elbow retards swelling and increases the child's comfort. The addition of a plaster splint to hold the forearm in supination is advocated by some.

Read before the Section on Orthopedic Surgery at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

[1] Schulz, I.: Fractures of the Elbow in Children, Wisconsin M. J. 36:913, 1937.

[2] Dunlop, J.: Transcondylar Fractures of the Humerus in Childhood, J. Bone & Joint Surg. 21:59, 1939. Allen, P. D., and Gramse, A. E.: Transcondylar Fractures of the Humerus Treated by Dunlop Traction, Am. J. Surg. 67:217, 1945.

The rotation of the forearm is unimportant once reduction has been obtained. Adhesive plaster dressings are secure—too secure. Unless applied with extreme care, they are a threat to circulation. Some of the worst cases of Volkmann's ischemia have occurred with the use of adhesive plaster dressings.

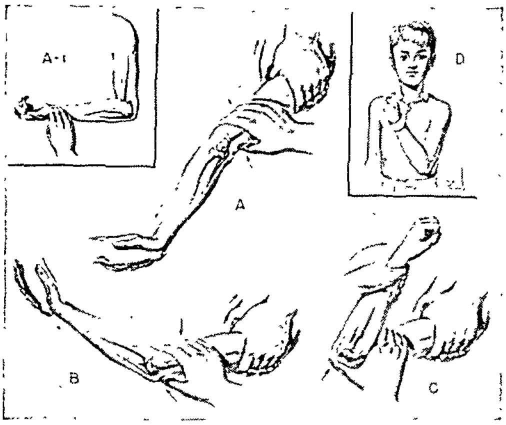

Fig. 1.—Reduction of a supracondylar fracture. *A*-1, determine the presence or absence of the radial pulse; examine for motor paralysis. *A*, reduction under general anesthesia. Traction is applied and the elbow hyperextended. *B*, the surgeon's thumb forces the distal fragment into position. Accurate reduction is obtained by rotation of the forearm and molding at the site of the fracture. *C*, only after the fracture is completely reduced is the elbow flexed acutely (not forcibly). *D*, reduction is maintained by the flexed position that is assured by an efficient collar and cuff.

After reduction of the supracondylar fracture, the child should be hospitalized for 24 hours to insure frequent observation of the circulation of the hand by a competent nurse or house officer. If this is not possible, the parents must understand the danger signals. Most significant as warnings of early ischemia are pain, swelling, coldness, cyanosis or pallor, and paralysis of the hand. The most important and constant of these signs is pain. A child with a well-reduced fracture should not require sedatives other than acetylsalicylic acid (aspirin). Pain severe enough to require use of opiates should be a warning that there is disturbed circulation.

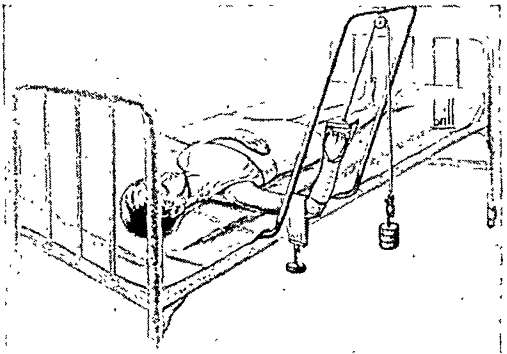

Fig. 2.—Dunlop's traction as modified by Allen and Gramse[2] is used temporarily if there is excessive swelling or threatened vascular embarrassment. It may be continued until healing is complete.

Complications.—If there is evidence of circulatory embarrassment and threatened ischemia, all bandages are removed from the elbow and forearm, angulation is reduced to about 120 degrees, and ice bags are applied. Satisfactory position of the fragments and elevation of the forearm are maintained by traction. Usually this may be applied to the skin of the forearm without constriction (fig. 2), but traction by means of a Kirschner wire through the olecranon[3] or even the base of the thumb may be preferable. Loss of position of fragments is insignificant compared to the permanent disability following unrelieved ischemia.[4] Prompt blocking of the appropriate sympathetic ganglions is frequently effective. If the symptoms are well advanced or do not subside with conservative measures, no time should be lost before exploring the cubital fossa and volar aspect of the forearm. The tough fascia enclosing the flexor muscles of the forearm is slit, permitting the explosive extrusion of edematous muscles and hematoma. An injured or markedly constricted brachial artery should be resected. This relieves vasospasm and the reflex involvement of the intimate vasculature of the muscles.[5] Delay is disastrous. Within three or four hours irreversible changes have taken place. The all-too-frequent claw hand usually means inadequate or delayed therapy.

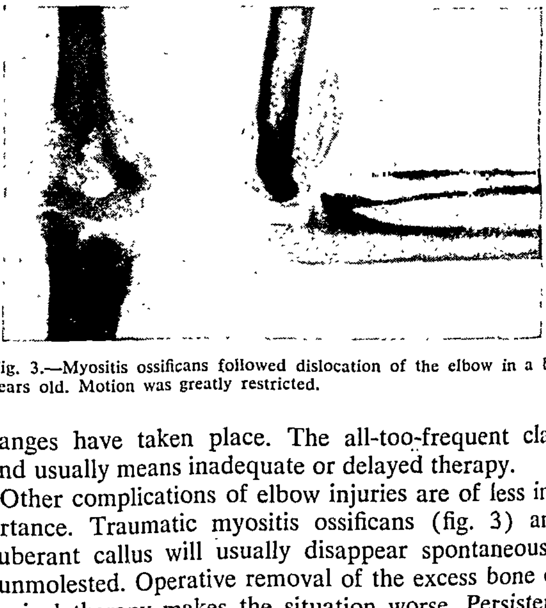

Fig. 3.—Myositis ossificans followed dislocation of the elbow in a boy 6 years old. Motion was greatly restricted.

Other complications of elbow injuries are of less importance. Traumatic myositis ossificans (fig. 3) and exuberant callus will usually disappear spontaneously if unmolested. Operative removal of the excess bone or physical therapy makes the situation worse. Persistent capsular contracture may require excision of the anterior capsule.[6] Reversal of the carrying angle (gun stock deformity) may be due to uncorrected medial displacement of the distal fragment, usually because of rotation. It may follow a perfect reduction because of accelerated growth of the lateral condyle, but rarely results from retarded growth of the medial condyle. Paralysis from nerve injury is usually only temporary.

Aftercare.—In the average case the elbow should be immobilized in flexion for about three weeks. At the end of that time the callus is hard enough to allow the elbow to be lowered to a right angle in a sling. In another week or two, all fixation may be discontinued and the child allowed to use the hand at his own discretion. It has been adequately proved that more rapid return of normal function will occur if the child is unmolested. Carrying pails of sand does more harm than good. There should be no manipulation to increase motion either with or without anesthesia. Repeated stretching of contractures not only distresses the child but perpetuates the spasm and delays the return of normal function.

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[3] Carli, C.: Trazione col filo nelle fratture sovracondiloidee di gomito del bambino, Chir. d. org. di movimento **18**: 311, 1933.

[4] Blount, W. P.: Volkmann's Ischemic Contracture, Surg., Gynec. & Obst. **90**: 244, 1950.

[5] Harman, J. W.: The Significance of Local Vascular Phenomena in the Production of Ischemic Necrosis in Skeletal Muscles, Am. J. Path. **24**: 625, 1948.

[6] Wilson, P. D.: Capsulectomy for the Relief of Flexion Contractures of the Elbow Following Fracture, J. Bone & Joint Surg. **26**: 71, 1944.

Occasionally there is an indication to continue traction until callus is solid. When angular deformity persists at the end of three or four weeks, the fracture may be manipulated under anesthesia and satisfactory position obtained. Bayonet apposition with normal alignment is satisfactory and is not an indication for manipulation at this stage. As in fractures of other long bones, sharp edges round off as growth continues.

FRACTURES THAT REQUIRE OPEN REDUCTION

Fractures of the lateral condyle (84, or 18.5%, of 453 consecutive elbow fractures) require open reduction. The fracture line extends from the lateral epicondyle obliquely downward and medially into the trochlea. The deformity is not great, and the injury is often dismissed as a sprain. The roentgenographic diagnosis is difficult in very young children because a large portion of the distal end of the humerus is still cartilaginous. The oval osseous center of the capitellum may be the only bone visualized in the condylar fragment, but usually a flake of metaphyseal bone is carried with it. The fragment is larger than appears in the roentgenograms. It is characteristically rotated laterally and downward by the pull of the extensor muscles and trapped in the joint, so that the articular cartilage of the capitellum comes to lie against the raw surface of the metaphysis (fig. 5*A*).

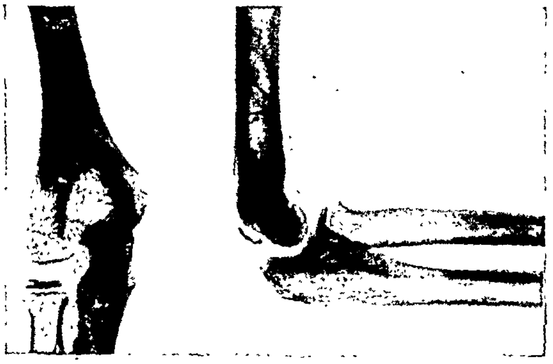

Fig. 4.—Roentgenogram taken three years later of the elbow shown in fig. 3. The excess bone has almost disappeared Elbow motion is normal. No treatment was given. Operation is contraindicated in children.

If the fracture is untreated, nonunion almost always occurs (fig. 6). With growth, the carrying angle becomes exaggerated. The end result is a painful, weak, deformed elbow. The most significant disability is delayed ulnar nerve palsy, which comes on about 20 years after the injury (fig. 7). When the displacement is marked, attempts at closed reduction are futile. Rarely, the fragment may be jockeyed into normal position, but it will not stay there without internal fixation. It is much better to do an immediate (within five days) open reduction with pin fixation than to operate two weeks later because the fracture has slipped. When the operation is delayed, it is more difficult and may cause overgrowth. Retardation of growth has not been encountered.

In the case with only slight initial displacement, there may be sufficient continuity of the soft parts to keep the fragment in position. Closed reduction may improve the position, and open operation may be unnecessary. Check-up roentgenograms should be obtained at two and five days. The fragments frequently slip soon after reduction.

The Operation.—The open reduction of a lateral condylar fracture is best accomplished through a Kocher incision (fig. 5*A*-1). A tourniquet is not necessary. After the clotted blood has been removed from the raw surfaces with a curet, the mobile fragment may be pulled into position with sharp hooks. An accurate fit should be obtained. Two obliquely placed short pins are efficient in holding the fragment. The periosteum is sutured, but

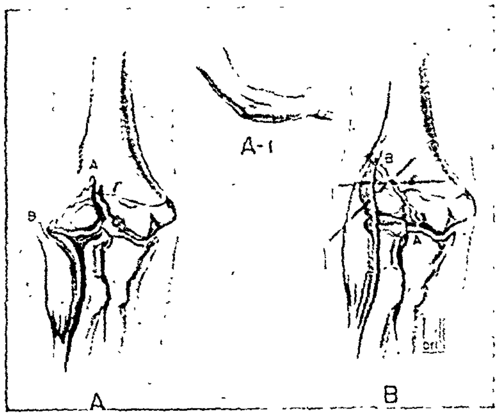

Fig. 5.—*A*, fracture of the lateral condyle. The extensor muscles of the forearm frequently rotate the fractured surface *AB* laterally and downward through an arc of 90 degrees or more. The osseous centers of the capitellum and the medial epicondyle are indicated in white. *A*-1, open reduction is performed through a part or all of the Kocher lateral incision. *B*, the rotated condylar fragment has been pulled back into position with small bone hooks. The fractured surface *AB* has its normal position. The fragment is fixed with two pins, which are allowed to protrude slightly under the skin. The aponeurosis of the extensor muscles is sutured.

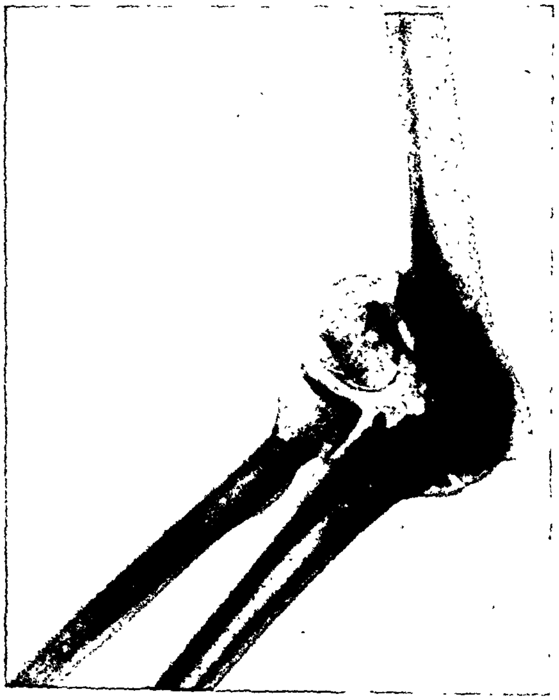

Fig. 6.—Anteroposterior roentgenogram of the elbow of a 21 year old man who had an untreated lateral condylar fracture at 2 years of age. There were weakness and pain from the nonunion of the condyle; early symptoms of ulnar nerve trauma resulted from the increased carrying angle.

this alone is not enough fixation. The pins may be left slightly long so that they protrude under the skin (fig. 5 *B*). After closure of the wound, a cast is applied from the knuckles to the axilla with the elbow in flexion of 90 degrees (fig. 8) and the forearm in neutral rotation.

At the end of three weeks the stitches are removed through a window in the cast. If they have not already pushed through the skin, the pins are exposed with a pointed knife and pulled out. A week later the cast may be removed and replaced by a sling. Long term (10 to 15 years) follow-up of fractures treated by open reduction has shown the results to be uniformly satisfactory. Growth arrest or significant limitation of motion has not been observed.

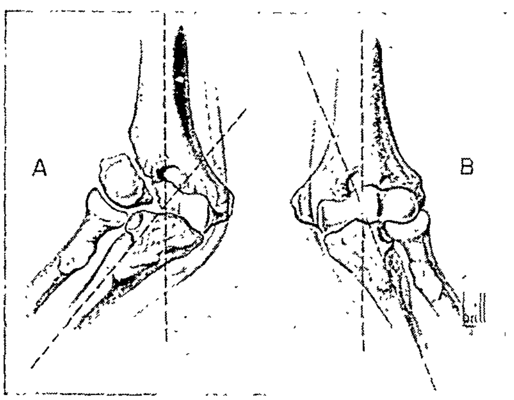

Fig. 7.—Nonunion usually occurs in untreated lateral condylar fractures in young children. With growth the carrying angle increases. Compare with the normal side *B*. Years of trauma to the ulnar nerve result in the characteristic picture of delayed ulnar nerve paralysis.

FRACTURES OF THE MEDIAL EPICONDYLE

Fractures of the medial epicondyle made up 8%, 38 cases, of the present series. Medial epicondylar avulsion is the result of sudden valgus strain of the elbow. It commonly occurs with dislocation of the elbow joint. If the apophysis is displaced only a few millimeters, the aponeurosis of the flexor muscles is probably not completely torn. Brief immobilization in flexion is all that is necessary. Bony healing will usually take place without deformity or disability. If the displacement is greater than 5 mm., one must decide between leaving the fragment displaced and opening the fracture and pinning the fragment in its normal position. Attempts at closed reduction are fruitless. If the displacement is allowed to persist, nonunion is the rule. Usually there is slight deformity but no disability. In girls this may be more desirable than a scar. Occasionally the displaced fragment is reunited to the metaphysis by a hornlike bony projection.

With marked displacement of the epicondyle there may be associated symptoms of ulnar nerve injury. The fragment of bone with the attached flexor muscles may be incarcerated in the elbow joint. There may be considerable rotation of the fragment distally and medially. Any of these findings is an indication for open reduction, without which there will be deformity, weakness, and limitation of extension.

In a fresh case the fragment should be pinned back in position. The ulnar nerve may be exposed during the operation, but it is rarely injured and may be left in its groove. If operation is not done until two weeks after the injury, it is better to excise the fragment and suture the aponeurosis of the muscle to the humeral condyle. Open reduction and internal fixation performed four weeks or more after the injury are usually followed by only a fair result and prompt operation by an excellent one. The elbow should be immobilized in right angle flexion for four weeks postoperatively as described for lateral condylar fractures (fig. 8).

FRACTURES OF THE RADIAL NECK

Twenty-one (4.5%) of the fractures in this series were of the radial neck. The force that produces a compression fracture of the radial head in an adult will fracture the radial neck in a child. Characteristically, the button-like osseous center with a thin flake of metaphysis is broken off transversely and pushed radially. If the displacement is only partial, so that there is some apposition and the angulation is 45 degrees or less, one may be able to manipulate the fragment so as to improve the position. Then the treatment should be conservative. A cast is applied with the elbow flexed to 90 degrees or more acutely. Whether the position is improved or not, with the 45 degrees of angulation the end result will be surprisingly good. After removal of the plaster, there will be a period of marked disability during which all motions are greatly restricted. Such disability may last for several months. The temptation is great to excise the radial head in order to increase the range of motion. While the immediate effect is favorable, the late results are tragic. In the cases that have been followed,[7] there has been gross deformity with radial deviation of the hand, shortening of the forearm, increase in the carrying angle, and weakness. Never excise the radial head in a growing child.

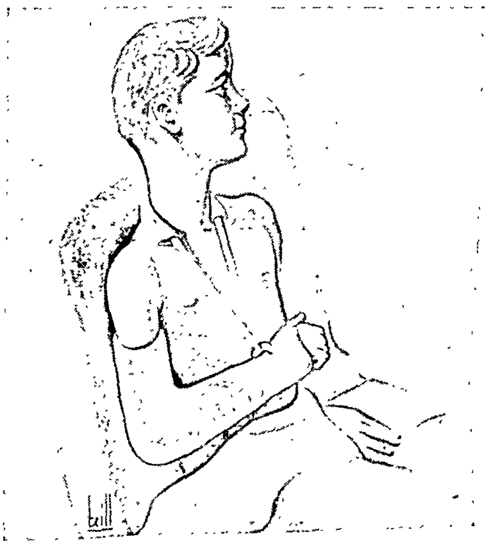

Fig. 8.—An arm cast with the elbow flexed is of great value in children's fractures. When it is used as a hanging cast to *maintain reduction* of a low humeral fracture, the elbow should be flexed more acutely than a right angle. For a few days the patient should sit almost upright with the elbow hanging free.

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7. Lewis, R. W., and Thibodeau, A. A.: Deformity of the Wrist Following Resection of the Radial Head, Surg., Gynec. & Obst. 64: 1079, 1937.

If the radial head is angulated 90 degrees and displaced off the shaft so that its fractured surface lies against the shaft, prompt open reduction is the treatment of choice. If the operation is performed in the first few days, the immediate and late results should be excellent. A bad prognosis [8] is not justified. Great care should be used in handling the epiphysis. It should be gently pulled into position with small hooks. When it is accurately replaced and the elbow flexed, rotation of the forearm will not displace the fragment. The flexed position should be maintained while the wound is closed and plaster applied. Internal fixation is undesirable and usually unnecessary.[9]

If the operative reduction is delayed or if the fracture is of the comminuted type, considerable new bone will be formed and motion will be restricted for some time. As in cases of traumatic myositis ossificans, the treatment should be conservative. Satisfactory motion will gradually return in most cases. Physical therapy is contraindicated. In the unusual case with pronounced restriction of radiohumeral motion, or in the very rare fracture of the head of the radius, operative resection of the head is indicated but should be postponed until the child is nearly full grown.

MISCELLANEOUS ELBOW INJURIES

Olecranon fractures (6%) may occur as isolated injuries in children. Fixation in extension is permissible. Not infrequently olecranon fractures are associated with dislocation of the radial head. If both are treated promptly, closed reduction is usually successful. Open reduction of a dislocated radial head may be necessary. Use the Boyd incision.[10] Fractures of the proximal third of the ulna associated with dislocation of the radial head (Monteggia) are rare in children (1.5%). They do not require internal fixation of the ulna as in adults.[11] When the radial head is reduced by manipulation or by open operation, the radius splints the ulna.

An old dislocation (three months) of the radial head in a child, either with or without associated fracture, should not be reduced by open operation. This dislocation causes no disability, although it may be unsightly. Delayed open reduction results in permanent limitation of motion. Excision of the radial head leads to the deformity and disability previously mentioned and is absolutely contraindicated. After the child is fully grown, the radial head may be excised.

Subluxation of the radial head in very young children is puzzling to the uninitiated. This common lesion is produced by a jerk on the upraised arm of a 2 to 4 year old child.[12] The subluxation is extremely painful. The child screams and resists all attempts at help. The roentgenograms show nothing abnormal. The diagnostic feature is limited supination. Forced supination produces an audible and palpable click associated with sharp pain. Motions then become normal, and the pain disappears. The elbow should be immobilized with a collar and cuff for a week to prevent recurrence of the subluxation.

SUMMARY

Elbow fractures in children are different from similar fractures in adults. With three exceptions, conservative treatment by manipulation or by traction is preferable to open operation.

In most fractures of the lateral condyle the treatment of choice is immediate open reduction and internal fixation.

Fractures of the medial epicondyle with marked displacement, with incarceration of the fragment in the elbow joint or with symptoms referable to the ulnar nerve, require prompt open reduction and internal fixation.

Fractures of the radial neck with minimal displacement should be treated conservatively; those with marked displacement should be reduced by prompt open operation without internal fixation.

Operation is contraindicated in children with dislocation of the radial head or fracture of the radial neck of longer than three months' duration and in children with myositis ossificans.

Complications are frequent in elbow fractures. The most serious complication is Volkmann's ischemia. When there is threatened circulatory embarrassment, the vascular problem becomes more important than the position of the fragments; prompt heroic measures are indicated.

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ABSTRACT OF DISCUSSION

Dr. Vernon P. Thompson, Los Angeles: The supracondylar or transcondylar fracture is above the elbow joint. If the surgeon does not manhandle the elbow joint with repeated forcible manipulations, or insult it by open surgery, there will be useful elbow motion. There may be deformity; there may be limitation, but there will be useful elbow-joint motion. The other fractures of the elbow, which are internal derangements, require as near anatomic reposition as possible, with maintenance by whatever means necessary, and useful elbow-joint function will be gained. The factors of growth that Dr. Blount has stressed for many years in treatment of children's fractures are especially helpful with the rather uniform lack of anatomic replacement of the supracondylar fracture. Cubitus varus and rotational disalignment occur frequently. Reduction and maintenance still need to be improved. In the closed management of the supracondylar fracture, the surgeon must choose either manipulative reduction or traction. If he chooses closed reduction, it should be successful with gentleness and without repetition; he must secure not only alignment but also bony apposition and sufficient flexion to maintain fixation. If the fracture is sufficiently high, so that one has two prongs, one usually longer than the other, one of which slips in front or in back, it causes rotational disalignment, with loss of carrying angle; then he must take his hat off to Dr. John Dunlop, who has shown us for many years in Los Angeles how useful traction is. With traction the surgeon need not insult the joint; he needs only to obtain alignment. He does not have to secure firm bony apposition. But secure maintenance by callus requires at least two and often three weeks. I am happy to have read Dr. Blount's appreciation of the value of this means of reduction. There is a poor cosmetic effect in loss of carrying angle and the limitation of extension. I have seen few of these elbows that have hyperextension. Forcible attempts to correct the deformity may disturb the alignment, resulting in a worse deformity through interference with growth. After healing and return of motion, corrective osteotomy may be performed if the deformity warrants it.

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[8] Aitken, A. P., in discussion on Beekman, F., and Sullivan, J. E.: Some Observations of Fractures of Long Bones in Children, Am. J. Surg. **51**: 736, 1941.

[9] Key, J. A.: Treatment of Fractures of the Head and Neck of the Radius, J. A. M. A. **96**: 101 (Jan. 10) 1931.

[10] Boyd, H. B.: Surgical Exposure of the Ulna and Proximal Third of the Radius Through One Incision, Surg., Gynec. & Obst. **71**: 86, 1940.

[11] Boyd, H. B.: Fractures About the Elbow in Children, *Surg., Gynec. & Obst.* **89**: 775, 1949.

[12] Destot, E.: *Pronation et supination de l'avant-bras dans les lésions traumatiques*, Presse méd. **21**: 41, 1913.

Dr. Lewis M. Overton, Albuquerque, N. M.: I should like to congratulate Dr. Blount and his co-authors on a timely and pertinent discussion of an important subject. I heartily agree with their conservative approach to the problem; however, there are some difficulties that arise in the management of these injuries in which my experience has been somewhat different from theirs. Oblique supracondylar fractures, which are not infrequent in children, often present definite problems. The obliquity is usually downward and lateral. This produces a tendency for the lower fragments to displace medially, as well as posteriorly. In most instances the fractured surfaces are rough and somewhat splintered. This will allow some locking of these fragments when the elbow is manipulated, but, if any rotation occurs, the locking is not sufficient to prevent a loss of position. The only way in which one can be sure of preventing the loss of position in these fractures is by immobilizing the elbow in a plaster cast and anchoring it to the body with a shoulder spica cast, which has been described by Conwell and Key. It is interesting to note that the displaced radial head, which is free in the joint when completely reduced or satisfactorily reduced, will give an excellent result in children. Fractures of the upper third of the ulna, with dislocation of the head of the radius, or so-called Monteggia's fracture, are not common in children but, when present, will result in considerable disability, if treatment is not adequate. I cannot agree with the authors that this injury is not disabling. It is necessary to secure a stable radial head, if a satisfactory function is to be obtained. Failure to do so will result in a valgus deformity of the elbow, radial deviation of the hand, and an unstable elbow joint. This is particularly true in young children. Late open reduction and reconstruction of the annular ligament are not entirely satisfactory. For this reason, one must stress the early reduction and repair of the ligament, if the radial head remains unstable after closed reduction.

Dr. Walter P. Blount, Milwaukee: The difficult supracondylar fracture, and particularly the oblique fracture, can be well treated by traction, as both discussants have pointed out. I am grateful to Dr. Thompson for emphasizing this point. Dr. Overton gets very good results with plaster fixation. In my experience, if the child is let out of the hospital, he will wiggle in the plaster and lose the position of an oblique fracture. I treat these difficult fractures with traction somewhat according to Dunlop's method rather than with plaster. But use whichever method is best in your hands and conservative measures when possible. A Monteggia fracture in children is interesting. I agree with Dr. Overton that the necessary point is to get the radial head back into position. The incision of Boyd is ideal for this purpose. One cannot keep the radial head away from the capitellum once the orbicular ligament is cut out of the way. Then the radius splints the ulna, and internal fixation is almost never necessary in children. Like Dr. Overton I would warn you not to do a late reduction of the dislocation. After three months, let the displaced radial head alone, whatever the cause, because function remains excellent in spite of the appearance. After this length of time, an open reduction of the radial head in a child leads to limitation of motion and permanent disability. The radial head may be removed when the child is full grown. Pain after reduction of a fracture in a child should be controlled by aspirin; opiates should not be necessary. If opiates are required, it usually means that there is something wrong with the reduction or the fixation.

CLINICAL IMPLICATIONS OF MARFAN'S SYNDROME

Arthur Alan Fischl, M.D.

and

Jack Ruthberg, M.D., New York

The syndrome was first reported in the literature by A. B. Marfan[1] in 1896 as *pieds d'aragne* (spider feet). Méry and Babonneix[2] suggested the name hyperchondroplasia. C. Achard[3] in 1902 because of the spider-like appearance of the extended fingers called it arachnodactyly. Since that time there have been over 200 cases reported in the literature, particularly the French and German. It was not until 1926 that Piper and Irvine-Jones,[4] who associated the syndrome with congenital heart disease, published the first paper to appear in American journals. A few more cases have been added since.[5] We feel, however, that the condition is much commoner than is indicated. Very few autopsies have been reported, only about 13 in over 200 clinical reports. Reports on examinations of the eye are rare.

REPORT OF CASES

Case 1.—A 24 year old white woman was seen, complaining of severe chest pains and "palpitations." These had been present for two years and had occurred with increasing frequency in the six months prior to the time we saw her. They were aggravated by excitement and often appeared nocturnally. During these attacks, she became weak and dizzy and perspired freely.

Physical examination revealed a slender girl with long arms and legs, the hands reaching almost to the knees. The wrists were long and flat, the face was narrow, long and thin. Pupillary reactions were present but sluggish. There was a definite tremulous motion of the irises on movement of the eyeballs. The fundi were visualized with difficulty, and the lenses seemed subluxated. The general facial expression was melancholic.

A moderate muscle weakness of the face and shoulder girdle was present. The hard palate was high and arched. The ears were long and pointed. The chest was long, narrow and funnel shaped. The left border of the heart extended 18 cm. from the midsternal line, with the apex palpable in the left eighth interspace, with a regular sinus rhythm. The apex impulse was heaving, with a precordial bulge. A systolic blow was present at the apex, and, in addition, aortic systolic and aortic diastolic murmurs were heard. The blood pressure was 145/20. The lower extremities presented the same picture as the upper. The legs were long and thin, the patellas being elevated, with long and tapered toes. Slight webbing of the toes and fingers existed.

Assistant Clinical Professor of Medicine, New York Medical College (Dr. Fischl), and Assistant Visiting Physician, Queens General Hospital (Dr. Ruthberg).

From the Department of Medicine, Queens General Hospital, James R. Reuling, M.D., Director.

[1] Marfan, A. B.: Cas de deformations congenitales des quatres membres, plus prononcees aux extremites, Bull. et mém. Soc. méd. d. hôp. de Paris **13**: 220 (Feb. 28) 1896.

[2] Méry, H., and Babonneix, L.: Un cas de formation congenitale des quatre membres: Hyperchondroplasie, Bull. et mém. Soc. méd. d. hôp. de Paris **19**: 671 (July 4) 1902.

[3] Achard, C.: Arachnodactylie, Bull. et mém. Soc. méd. d hôp. de Paris **19**: 834 (Oct. 10) 1902.

[4] Piper, R. K., and Irvine-Jones, E.: Arachnodactyly and Its Association with Congenital Heart Disease, Am. J. Dis. Child. **31**: 832 (June) 1926.

[5] (*a*) Norcross, J R.: Arachnodactylia: A Report of 8 Cases, J. Bone & Joint Surg. **20**: 757 (July) 1938. (*b*) Wyckoff, H. J.: Arachnodactylia, Northwest. Med. **38**: 134 (April) 1939. (*c*) Futcher, P. H., and Southworth, H.: Arachnodactyly and Its Medical Complications, Arch. Int. Med. **61**: 693 (May) 1938. (*d*) Fahey, J. J.: Muscular and Skeletal Changes in Arachnodactyly, Arch. Surg. **39**: 741 (Nov.) 1939. (*e*) Green, H., and Emerson, P. W.: Arachnodactylia: Clinical Report of 6 Cases, Arch. Pediat. **60**: 299 (June) 1943.

Roentgenograms of the chest revealed an enlarged left ventricle and auricle, with fulness of the middle third, suggestive of a double valve lesion. An esophagram confirmed the enlarged left auricle. Roentgenograms revealed notching of the ribs as seen in coarctation of the aorta (fig. 1).

Repeated electrocardiograms showed a progressive increase in tachycardia from 110 to 130. The ST segments showed a progressive depression with gradual inversion of the T waves in the standard limb leads. The P wave was large and broad. A progressive right axis shift was noted over four months. The patient had attacks of paroxysmal tachycardia which failed to respond to quinidine. These, however, would sometimes break spontaneously. The patient improved after three weeks of bed rest.

She was readmitted six months later in poor condition. The palpitations and precordial pain had become more frequent and severe. Blood pressure in the arm was 140/70 and in the leg 120/70. A loud to-and-fro murmur was heard over the entire precordium. The patient had a high fever, with the electrocardiogram showing an active carditis with pericarditis. Therapy with salicylates, digitalis and penicillin was of no avail. The patient became mentally confused and disoriented, left the hospital and expired at home.

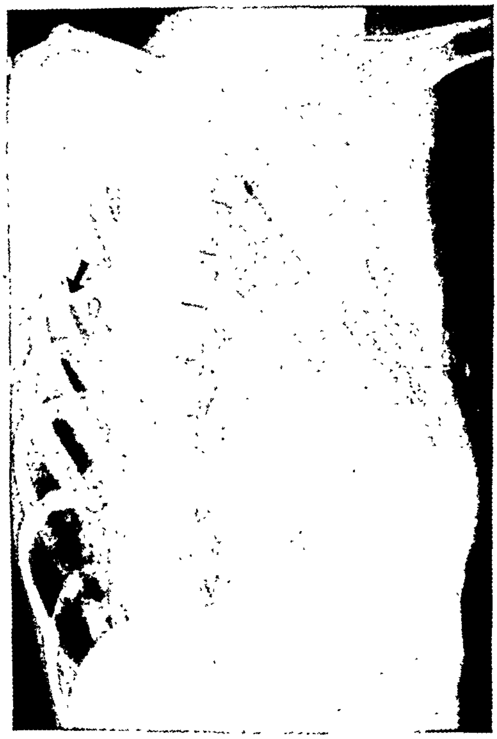

Fig. 1.—Right oblique view (with barium) showing enlarged auricles and notching of ribs.

At autopsy[6] it was observed that there were several petechiae and a left conjunctival hemorrhage The palate was high and arched. The ears were long and pointed. The limbs were long and slender with increased webbing between the fingers and toes. The pericardium was dilated to accommodate a decidedly enlarged heart. The right pleural cavity contained about a liter of clear yellow fluid; the left was obliterated by adhesions. The weights of various organs were heart 750 Gm.; right lung 680 Gm.; left lung 600 Gm.; liver 1,950 Gm.; spleen 175 Gm.; right kidney 160 Gm.; left kidney 160 Gm.

Both lenses of the eyes were small and appeared loosely attached (fig. 2). The ciliary body was narrow. The retina was attached. The optic nerve head suggested a mild atrophy extending to the lamina cribrosa. The ora serrata showed atrophic changes (fig. 2). Microscopic examination of the eye showed round cell infiltration in the region of the optic head, with a suggestion of atrophy of the nerve. The choroid showed round cell infiltration and irregularity of pigment dispersion. The retina showed no pigment migration and the layers were intact, with apparent diminution of ganglion cells. The pars plana showed pigment in its depths. The ciliary body was atrophic with hyalinization of the ciliary processes. The iris showed evidence of loss of furrows and irregular pigmention in one epithelial layer. The filtration angle was normal.

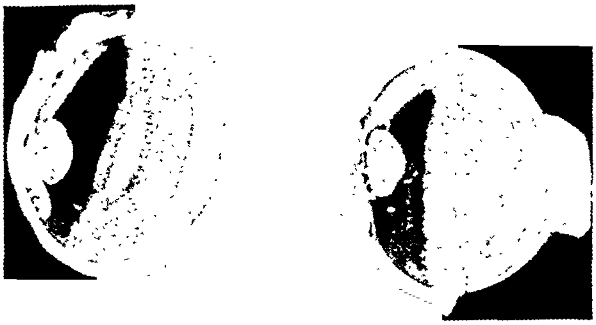

Fig. 2.—Cut section of eyes. Note the small spherical lens.

The thyroid gland was normal. The lungs were congested and wet at the bases, with a deep red, firm area at the base of the left lower lobe. In the artery to the left lower lobe an antemortem thrombus was found. The heart was enormously dilated and also hypertrophied. The valves were insufficient because of pronounced dilatation of the valve rings. The myocardium was soft and flabby. The pulmonic cusps were separated, and the pulmonary conus was widened. The aorta showed a large saccular aneurysm beginning at the base of the aorta and involving the ascending aorta (fig. 3). Just beyond the left subclavian artery was a coarctation of the aorta. The ductus arteriosus was a fibrous cord at this point. Microscopic examination of the heart and aorta showed a moderate fatty degeneration of the myocardium with a moderate diffuse fibrosis. The aorta at the coarctation site showed a definite disorganization of the elastica, particularly at the inner aspect of the aorta. There was a diffuse fibrosis and hyalinosis in this area. A fine fibrillar elastic layer occupied the region of the intima and subintima. The elastic tissue was not well formed or stained throughout the media. The aneurysm itself showed a dense collagenous zone in the adventitia. Foci of necrosis and degeneration were noted throughout the media. The elastic coat was incomplete and disorganized. Some cystic areas were noted in the media with mucinous-like contents (fig. 4). The adventitia coat was dense and hyalinized. No inflammatory lesions were observed.

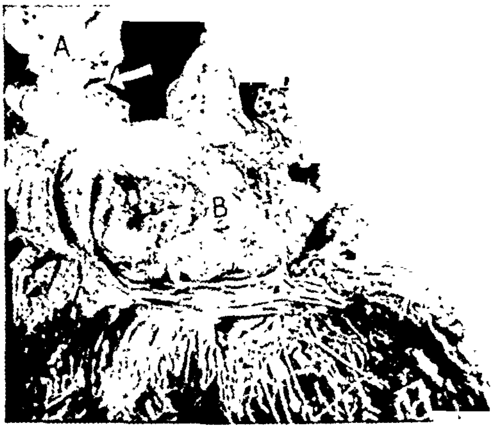

Fig. 3.—Heart and aorta. *A*, the aortic coarctation site; the ductus arteriosus was a fibrous cord at this point (arrow). *B*, the saccular aneurysm of the ascending aorta. Note the dilatation of the aortic valve ring.

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[6] The autopsy in case 1 was performed by Drs. J. Ruthberg, A. Angrist and L. Burson.

The liver, spleen and kidneys showed a chronic passive congestion. One ovary was enlarged and, on section, showed a soft mass containing some hair. A chronic salpingitis was present. Microscopic examination showed chronic passive congestion of the liver, kidneys and spleen, with a dermoid cyst of the ovary and chronic salpingitis.

The final postmortem diagnosis was coarctation of the aorta; sacculated aneurysm of the base of aorta; myocardial hypertrophy and dilatation; chronic passive congestion of liver, spleen, kidneys and lungs; arachnodactyly (Marfan's syndrome); microlentis with subluxation; dermoid ovarian cyst; chronic salpingitis and antemortem embolus to the left lung.

Case 2.—A 32 year old Negress was first seen in June, with a history of vaginal discharge, chills and fever of three months' duration. A temperature of 101 F. was found, with a tender mass in the right adnexa. A cystic ovary with a chronic salpingitis was observed. The patient was readmitted several times with cough, hemoptysis and night sweats. A retrograde urogram showed an ectopic left kidney with hydronephrosis. Blood pressure was 105/68. The face was elongated, with long pointed ears. The pupils reacted to light and accommodation. A tremulous motion of the iris was noted (iridodonesis). The lens was deep and subluxated, creating a deep anterior chamber. The extremities were noteworthy in that the arms and legs were extremely long, with the fingers reaching to the knees. A pronounced webbing was present between the fingers. Both patellas were abnormally high, being about 3 cm. above the normal position. The feet were long in proportion. A roentgenogram of the chest revealed congenital abnormalities of the ribs. The left border of the heart was straightened, and a cervical rib was present. The sacrum showed spina bifida occulta. The electrocardiogram was normal. The patient was treated with sulfadiazine and responded readily. The clinical impression was Marfan's syndrome, pyelonephritis, congenital deformity of the kidneys and probable heart disease (congenital).

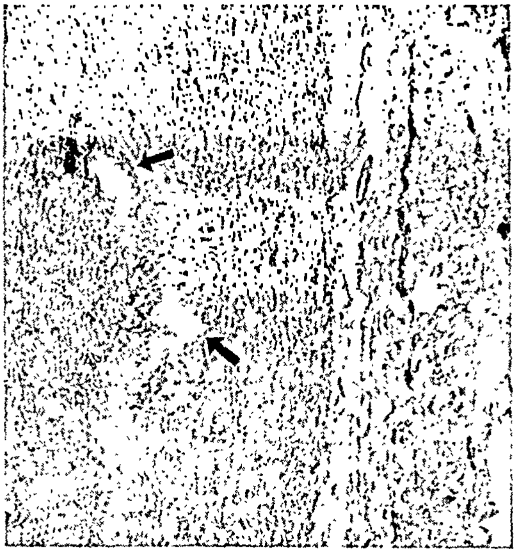

Fig. 4.—Cystic areas of degeneration in the aorta. These cysts are filled with mucoid material.

Case 3.—A 21 year old white man was seen April 11, 1946, complaining of chills and fever and diarrhea. Several days earlier he had had a tooth extracted, followed by edema of the face. Physical examination revealed a temperature of 103 F., pulse 80, respirations 22, with blood pressure normal. A purulent nasal discharge was present. A high palate was noted. The pupils were small with a pronounced myopia. The face was long with pointed ears. A funnel chest was present. The heart showed a regular rhythm, with the aortic second sound greater than the pulmonic second sound. No murmurs were heard. There was an absent lumbar curve. The extremities were exceedingly long with distinct webbing of the fingers. The joints were hyperflexible. The fingers reached almost to the knees. The patellas were higher than usual. Spinal tap showed 42 cells. A roentgenogram showed a pansinusitis, high patellas and abnormally long metacarpals and phalanges. White blood cells numbered 14,700, with 82 per cent polymorphonuclear cells. The patient was treated with sulfadiazine and improved.

COMMENT

In a review of this syndrome, our best knowledge comes from a study of autopsy material. Only a few autopsies have been done in the 200 or so cases reported. In 1914 Börger [7] found a patent foramen ovale and a two lobed right lung. Salle [8] reported a 6 week old male with an enlarged heart due to patent foramen ovale. Piper and Irvine-Jones [4] reported a 21 month old female who had a systolic thrill and a presystolic and systolic basal murmur. At postmortem examination, they found an interauricular septal defect with failure of division of the lobes of the lungs. Olcott's [9] case showed fenestrations of the mitral valve and a small frontal lobe of the brain. Futcher and Southworth [5c] reviewed three autopsies done in 1938. Pneumonia was the common factor in death. Baer, Taussig and Oppenheimer [10] in 1943 described two cases with aneurysmal dilatation of the ascending aorta proximal to the aortic arch, one of which had a dissecting aneurysm. Necropsy showed cystic areas in the media with rupture of the aorta. Etter and Glover [11] reported a massive hemopericardium and a dissecting aneurysm of the ascending aorta with rupture into the pericardial sac. Green and Emerson [5c] reported one lobe in the left lung and a small right middle lobe.

Rambar and Denenholz [12] had a patient who revealed an absence of dilator pupillae muscles, accounting for their inability to dilate with atropine. These eye observations may indicate that the aberration of development occurred during the sixth month of fetal life. There are numerous theories: a "constitutional aberration of anlage" [13] in Marfan's syndrome; that the condition has a neurological basis allied to syringomyelia; [14] some hereditary factor with a selective dystrophy of mesodermal tissues.[15] Rambar and Denenholz also felt that there was a defective anlage with a failure of development, and they cite the absence of dilator pupillae. Schilling [16] emphasized the hormonal disturbance, particularly hyperfunction of the eosinophilic cells of the pituitary. This factor was discredited by Young,[17] who felt that the onset of Marfan's syndrome was in utero and that, therefore, the endo-

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8. Salle, V.: Über einen Fall von angeborener abnormer Grosse der Extremitaten mit einem an Akromegalie erinnernden Symptomen-Komplex, Jahrb. f. Kinderh. **75**: 540, 1912.

9. Olcott, C. T.: Arachnodactyly (Marfan's Syndrome) with Severe Anemia, Am. J. Dis. Child. **60**: 660 (Sept.) 1940.

10. Baer, R. W.; Taussig, H. B., and Oppenheimer, E. H.: Congenital Aneurysmal Dilatation of Aorta Associated with Arachnodactyly, Bull. Johns Hopkins Hosp. **72**: 309 (June) 1943.

11. Etter, L. E., and Glover, L. P.: Arachnodactyly Complicated by Dislocated Lens and Death from Rupture of Dissecting Aneurysm of Aorta, J. A. M. A. **123**: 88 (Sept. 11) 1943.

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14. Pasachoff, H. D.; Madonick, M. J., and Drayer, C.: Arachnodactyly in 4 Siblings, with Pneumoencephalographic Observations of 2, Am. J. Dis. Child. **67**: 201 (March) 1944.

15. Weve, H.: Über Arachnodaktylie, Arch. f. Augenh. **104**: 1 (May) 1931.

16. Schilling, V.: Striae distensae als hypophysäres Symptom bei basophilem Vorderlappenadenom und bei Arachnodaktylie mit Hypophysentumor, Med. Welt **10**: 183 (Feb. 8) 1936.

17. Young, M. L.: Arachnodactyly, Arch. Dis. Childhood **4**: 190 (Aug.) 1929.

crines could not affect the fetus because of compensation by the mother. The theory of a congenital muscular dystrophy was also discredited by Young, since he reported normal muscular electrical response in Marfan's syndrome. The muscular disturbance in arachnodactyly is not progressive muscular atrophy. Piper and Irvine-Jones felt that there was a pathological defect in the germ plasma. The hereditary factor is mentioned by almost all writers.[18] Rados [19] collected 204 cases from the literature, 28.9 per cent of which showed a hereditary background and 18.8 per cent a questionable tendency.

The symptoms and signs presented by these patients are best described by the systems involved. The bony structures are considerably involved, the fingers and toes being long and tapering. The metacarpals and metatarsals are involved the most. There is a decided reduction of subcutaneous fat, giving the effect of malnutrition. These patients are usually "double jointed" due to relaxation of the ligaments. The ears are, as a rule, extremely prominent with pointed tips. The palate is high and arched. Kyphosis and scoliosis with sternal deformities are often present. Webbing of the fingers is common. The facial appearance is peculiar. A long drooping jaw, eyeglasses, thin face and long ears give the patient a mournful expression. The tendency to poor development of the secondary sexual characteristics has been noted. The basal metabolic rate may be decreased. Pneumonia is frequent as a cause of death, probably due to the chest and spine deformities plus the incidence of anomalies of the lungs. Mental retardation is rare. The eye findings are of significance and are important in the diagnosis. They are deeply set and myopic. About half the cases have a bilateral dislocation or subluxation of the lens. The pupils are in midconstriction, dilate poorly with atropine, and there is an associated iridodonesis. Greater stress should be placed on the high incidence of congenital heart disease. Abnormalities of the heart and lungs are present in about 50 per cent of the cases. Systolic murmurs are common (about 65 per cent). Interauricular septal defects are not unusual. They were described in three of eight autopsies. Congenital aneurysm of the aorta with subsequent rupture is common, and coarctation of the aorta, as shown in our case, is found in increasing instances. This should be borne in mind, for such lesions are often silent until later in life.

SUMMARY

Three cases of Marfan's syndrome are presented, one with an autopsy. A review of the literature is presented, with stress on the high incidence of cardiac malformation.

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SECOND ATTACKS OF POLIOMYELITIS

REPORT OF A CASE WITH AUTOPSY FINDINGS

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and
Irving Lipton, M.D., Van Nuys, Calif.

Second attacks of poliomyelitis have been reported infrequently. In 1948, Fox and his associates [1] reviewed the literature, noted 21 second attacks of poliomyelitis, and added one. Fifteen other cases were listed as doubtful. Besides those series, seven reliable and two probable second attacks have been recorded. Bridges and others [2] reported four second attacks and two questionable ones. Alves and Pugh,[3] Wyllie,[4] and Ashley,[5] have each reported one case. Thus, to date there have been 29 second attacks of poliomyelitis and 17 doubtful second attacks cited in the literature. Careful analysis of the reported second attacks reveals that in only one instance previously regarded as authentic did the second attack terminate fatally. In no case have autopsy findings been reported. Furthermore, in the fatal case cited by Fischer and Stillerman [6] it is questionable whether the patient ever had the disease previously. In that instance the supposed first attack was nonparalytic, and examination of the spinal fluid showed only two cells.

Here we wish to present a case in which the second attack terminated fatally and a complete pathological examination was performed.

REPORT OF CASE

E. T., a white woman aged 31, was admitted to Municipal Contagious Disease Hospital on Aug. 21, 1949, with a diagnosis of bulbar poliomyelitis. The past history revealed the usual childhood diseases, routine immunizations, and a tonsillectomy and adenoidectomy. At the age of 26 she was hospitalized in Pittsburgh, where the diagnosis was poliomyelitis, with paralysis of the left leg. On that occasion the patient "was told by her physician that her spinal fluid showed the typical findings of poliomyelitis." Following her recovery, she had residuals of marked weakness and moderate atrophy of the left leg. She eventually regained her general health but walked with a limp.

Former Medical Superintendent (Dr. Hoyne), and former Assistant Medical Superintendent (Dr. Lipton), Municipal Contagious Disease Hospital, Chicago Health Department.

1. Fox, M. J.; Madden, W. J., and Kohn, S. E.: Recurrent Poliomyelitis, Am. J. Dis. Child. **75**: 395 (March) 1948.

2. Bridge, E. M.; Clarke, G. H., and Abbe, D.: Clinical Immunity in Poliomyelitis, Am. J. Dis. Child. **72**: 501 (Nov.) 1946.

3. Alves, M. W., and Pugh, J. V.: Poliomyelitis: Second Attack, Brit. M. J. **2**: 904, 1947.

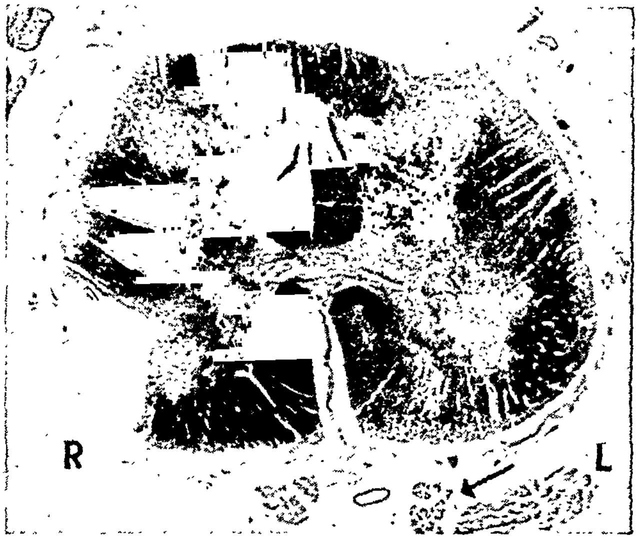
4. Wyllie, J.: A Second Attack of Poliomyelitis After 13 Years, Canad. J. Pub. Health **36**: 156, 1945.

5. Ashley, G.: Poliomyelitis: Second Attack; Report of Case, J. Kansas M. Soc. **48**: 406, 1947.

6. Fischer, A. E., and Stillerman, M.: Does Attack of Acute Anterior Poliomyelitis Confer Adequate Immunity? Report of 4 Second Attacks in New York City in 1935, J. A. M. A. **110**: 569 (Feb. 19) 1938.

Two days previous to the present admission, the patient developed a low-grade fever and severe frontal headaches. These symptoms persisted, and 24 hr. after the onset she experienced difficulty in swallowing and noticed that her voice sounded different. On the morning of hospitalization she had complained of weakness in the neck and back.

Physical Examination.—On admission, physical examination revealed a well-developed and well-nourished 31-year-old woman with slurred, nasal speech. Temperature was 98.6 F., pulse 104 a minute, and respirations 24 a minute. She was rational and well-oriented. Examination of the eyes, ears, and nose was noncontributory. Nuchal rigidity was absent, but the patient exhibited moderate head drop. There was no evidence of facial paralysis. The tongue was coated and deviated slightly to the right on protrusion. The tonsils had been enucleated, and there was a moderate amount of mucus filling the oropharynx. Heart and lungs were clear on percussion and auscultation. Abdominal examination disclosed no abnormalities. The upper extremities were normal in all respects. Although the lower extremities were of equal length, there was moderate atrophy of the left thigh and slight atrophy of the left leg as a result of the first attack of poliomyelitis. The left lower extremity also showed marked weakness in comparison with the right. Deep reflexes were equal and active, with the exception of the left patellar and ankle jerk, which were absent. The abdominal reflexes were active on the right side but absent on the left. Both the Kernig and Babinski signs were negative.



Photomicrograph of section of spinal cord at level of the first and second lumbar segments. Arrow points to anterior root which shows complete demyelinization of the nerve fibers on the site of the old lesion (left). In the anterior horns proper, no differences were seen between the left and right sides. This is because of the recent changes characterized by extreme destruction of the motor nerve cells and the presence of numerous inflammatory cells.

Laboratory Data.—Admission nose and throat cultures were negative for both diphtheria and hemolytic streptococci. The urine was acid with a specific gravity of 1.015. Urine showed 2 plus albumin, no sugar, and no blood. Microscopic examination revealed many pus cells but no casts. Unfortunately, the report of the white blood count was lost, but the differential count disclosed 68% polymorphonuclear cells and 32% lymphocytes. The cerebrospinal fluid was released under slightly increased pressure and appeared clear. The cell count was 140 per cubic millimeter. A smear showed many white blood cells, 90% of which were polymorphonuclear cells and 10% lymphocytes. There were no organisms. The Pandy test was 4 plus. Chlorides were 728 mg. per 100 cc., sugar was 74 mg. per 100 cc., and the total protein was 72 mg. per 100 cc. The spinal fluid culture was negative.

Treatment was entirely symptomatic. The foot of the bed was raised, and suction was used as necessary. Continuous intravenous fluids were started. On the second hospital day the temperature gradually rose to 102.4 F., pulse to 130 a minute, and respirations to 38 a minute. The patient became increasingly restless and suddenly stopped breathing. All efforts at resuscitation were without success and she was pronounced dead at 10:30 p. m., 30½ hr. after admission to the hospital.

Autopsy.—An autopsy was performed 15 hr. after death. The body was that of a well-nourished 31-year-old white woman. The lower extremities were of the same length, but the left thigh and leg were somewhat smaller than the right. The brain weighed 1,200 gm. and showed considerable edema and congestion. On section the brain stem revealed moderate injection. The spinal cord was markedly injected and edematous. Cross section of the cord in the cervical, thoracic and lumbar regions revealed moderate edema throughout. There were a few pin-point purple areas, most marked in the gray matter, but present also in the white matter. At some levels there was also loss of markings. In the lumbar region the left anterior horn was slightly smaller than the right.

The pleural cavities were free of fluid. The pericardial sac contained a few cubic centimeters of clear fluid. The larynx and trachea were free of fluid. The main bronchi contained a moderate amount of frothy fluid. The lungs were purple-gray, subcrepitant, and the posterior portions were congested. The cut surfaces everywhere were moderately moist with frothy fluid. The heart weighed 275 gm. It was soft and purple-gray and the valves showed no abnormality. Chambers of the heart were slightly dilated, and the coronary arteries had an occasional fatty plaque. The spleen weighed 200 gm. and was dark purple with follicles rather prominent. The liver weighed 2,000 gm. and was deep purple with no distinct markings. The kidneys weighed 300 gm. together and were dark purple-gray and congested. The stomach, pancreas, and adrenals showed nothing of significance. There was a 15-mm. gray nodule on the fundus uteri.

Degree of Involvement of the Nervous System As Shown by Microscopic Examination

	Parenchymatous	Interstitial	Vascular
Right frontal lobe	0	0	0
Left central ganglia	xxx	xx	xxx
Right dentate nucleus	0	x	x
Pons	x	xxx	xxx
Medulla	x	xxx	xxx
Cervical cord	xxx	xxx	xxx
Thoracic cord	xxx	xxx	xxx
Lumbar cord	xxxx	xxxx	xxxx

Microscopic examination of the cerebral cortex showed marked congestion of the overlying meninges. The cells and layers of the cortex were essentially normal. The central ganglia showed marked engorgement throughout. There was a large focal extravasation of blood near the left lateral ventricle. About this area there was marked diffuse infiltration of round cells and leucocytes, and many of the ganglion cells had disappeared or exhibited moderate neuronophagia. Most of the vessels were surrounded by round cells. The dentate nuclei of the cerebellum showed slight engorgement. The ganglion cells appeared intact. There was slight diffuse infiltration of round cells and leucocytes. A few of the vessels had small collars of round cells. The pons and medulla showed marked engorgement. Most of the ganglion cells appeared intact. Throughout the tissue there was moderate diffuse infiltration of round cells and a few focal collections of leucocytes. Most of the vessels were surrounded by collars of round cells. There was marked congestion of the entire spinal cord and meninges. The cervical and thoracic cord were notable for the disappearance of most of the ganglion cells from the anterior horns. The gray matter exhibited marked diffuse infiltration of round cells and leucocytes, and the white matter also showed slight infiltration. Most of the vessels of the gray matter and some of the vessels of the white matter were surrounded by collars of round cells and leucocytes. Changes in the lumbar cord were more accentuated, especially on the left side. There were a few foamy cells present in the anterior horns. On the left it was noted there was an absence of ganglion cells. The few remaining ganglion cells on the right side exhibited marked satellitosis and neuronophagia, and a few showed myelinization. Collections of round cells were prominent about the posterior roots.

The heart showed moderate interstitial edema, and the cross striations were indistinct. The splenic pulp was markedly engorged, and the follicles were large and lymphocytic. The liver sinusoids were engorged. The liver cells were swollen and granular. Many of the Kupffer cells were edematous and had large vacuoles. The glomeruli of the kidneys were engorged. There was marked engorgement throughout the lungs.

Clinical and Pathological Observations.—As a consequence of the first attack of poliomyelitis, the patient had marked weakness of the left lower extremity with moderate atrophy. The nerves supplying these groups of muscles had their origin chiefly in the lumbar region of the cord. Thus one would expect to find evidence of past pathology in this area. This was precisely the case. There was moderate atrophy of the left anterior horn of the lumbar cord, and microscopic examination revealed extensive destruction of the nerve cells. The pathological changes as a result of the second attack were very widespread and have already been discussed in detail.

COMMENT

Many second attacks of poliomyelitis undoubtedly have occurred which either passed unrecognized, or were not reported. But virus neutralization tests and studies of age incidence give strong evidence that at least some immunity to the virus of poliomyelitis is common. It is believed that adults are not ordinarily susceptible, because of acquired immunity following latent or subclinical infections. Failure to develop immunity from a previous attack is only characteristic of the exceptional person. Nevertheless, Fischer and Stillerman,[6] Nelson and Green,[7] and Bridge and others [2] reached the conclusion from hypothetical calculations that the incidence of second attacks of poliomyelitis is approximately the same as for recognized first attacks in the general population. This observation would indicate that no immunity against poliomyelitis develops following a primary attack of the disease.

The discrepancy in the two lines of thought might easily be explained by the existing evidence that there are different strains of the poliomyelitis virus.[8] It is therefore possible that second attacks of poliomyelitis may be produced by a strain immunologically different from that causing the first infection. Trask and others [9] showed that strains isolated from various outbreaks were not identical. Experimentally it has been found easier to reinfect monkeys with a different rather than with a similar strain of virus, although reinfection could be accomplished with an homologous strain.[10] During the last war, McAlpine [11] noted that the incidence of poliomyelitis for British and American troops was much higher among those stationed in India and the Middle East than for those in their home countries. He believed this difference might be explained by the fact that the foreign troops were exposed to a strain against which they had no previous immunity. Steigman and Sabin [12] have also presented strong evidence that immunity to poliomyelitis is specific for the strain of virus which caused the primary attack. Thus sufficient proof has been accumulated to lend credence to the idea that a second attack of poliomyelitis may be caused by an immunologically different strain.

Another consideration is that protection resulting from a first attack is relative. It is well known that individuals vary in their ability to produce antibodies and other defensive mechanisms against disease. In some instances, quantitative variations in the infectious agent may be the determining factor as to whether or not the disease will develop again after further exposure. At any rate, it is clear that in the management of poliomyelitis it is inadvisable to rely on a past history of the disease for certain protection against those who are acutely infected.

SUMMARY

A second attack of poliomyelitis with fatal termination and autopsy findings is presented. It is probable that this is the only reported authentic second attack with fatal outcome. Moreover, it is the first case recorded with complete pathological examination. On gross and microscopic examination the nervous system exemplified evidence of both recent and past pathology. It has been suggested that second attacks of poliomyelitis are due to an immuniologically different strain against which the patient has no previous immunity.

428 Oakdale Ave.

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Medicine and Religion.—While the knowledge of early anatomy had been stimulated by embalming, practised for religious reasons, and by dissections, carried out in the search for omens in the pursuit of magic, the Greek Alcmaeon of Crotona, about 500 B. C., seems to have been among the first to perform, as a scientific observer, dissections and animal experimentation in the search for knowledge of anatomy and physiology. Medicine, in the earlier Greek civilization, clearly had origin in religion and was held to be a branch of philosophy. Later, medicine reached its zenith in the teachings of Hippocrates. Free from superstition, the Hippocratic school recognized in disease a process subject only to the laws of nature, and taught the natural history of disease as it is derived from accurate observation and careful interpretation of symptoms. Treatment was based on the fundamental concept that the healing power of nature was primary and the physician's responsibility was to further nature's ends—an influence which has extended over two millennia.—William A. Rogers, The Background of a Half-Century of Progress, *The Journal of Bone and Joint Surgery,* November 1950.

EPIDEMIC DIARRHEA IN A SCHOOL FOR BOYS

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and
Commander Sidney A. Britten (MC), U. S. N.

In the latter half of October 1947 an explosive outbreak of nausea, vomiting and diarrhea affected 139 of 193 boys in a New England boarding school. None of the usual intestinal pathogens was identified. Evidence is presented that this kind of outbreak is no isolated event, and that the pattern of spread as determined from daily and four-hourly case incidence is more characteristic of a communicable disease transmitted by contact than of one caused by the ingestion of food or beverage.

St. Mark's boarding school is located in a rural area 25 miles from Boston and provides under one roof for the housing, feeding and instruction of 190 to 200 boys aged 12 to 18. The student body is subdivided into six forms (classes), which share common dining room, library, recreational and chapel facilities. The curriculum and daily routine are those of most college preparatory schools. About half the employees are residents of nearby villages and live at home; the others live on the school premises. Some faculty members reside in the various dormitories with the students, but the majority live in detached family dwellings near the main school building.

Within a period of 10 days 61 boys were admitted to the infirmary with various degrees of nausea, vomiting and diarrhea. Eighty others were treated as ambulatory patients or discovered by questionnaire. During this period, Oct. 17 to Oct. 27, 1947, symptoms referable to the gastrointestinal system developed in 141 (71 per cent) of 193 boys. In abruptness of onset, in attack rate and in progression through the school community the disease was much like that of pandemic influenza in the same school in 1917 (fig. 1).

THE CLINICAL DISEASE

Like the syndrome of nausea, vomiting and diarrhea described between 1935 and 1940 by Danish [1] and British [2] investigators and later by Reimann [3] and others [4] in the United States, illness was of less than 24 hours duration. Vomiting predominated in 31 per cent of patients, diarrhea in 22 per cent, while 40 per cent of the patients had both. The remaining 7 per cent had no more than mild manifestations of nausea or abdominal cramps. As analyzed by classes, the frequency and severity of symptoms were essentially the same for younger and older patients. Nausea and malaise sometimes antedated the vomiting by several hours, particularly during daytime. At night boys were often awakened by sudden and explosive vomiting. Diarrhea was copious, watery and free of mucus and blood. Stools commonly numbered from two to six in the course of a 12 hour period.

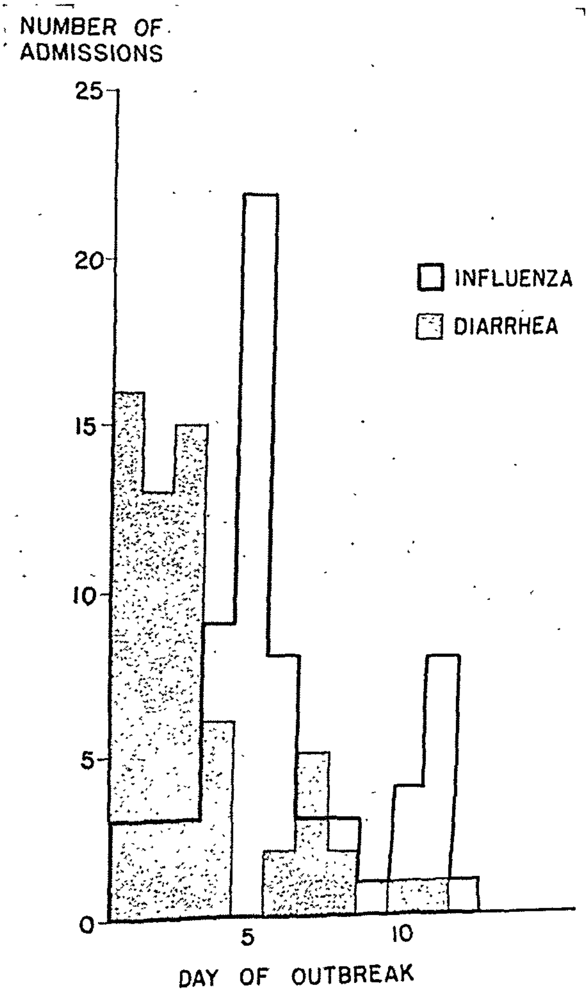

Fig. 1.—Daily admissions for the influenza epidemic of 1918 at St. Mark's school near Boston as compared with those for the diarrhea outbreak at the school in October 1947.

Although most patients were afebrile, approximately one-fourth had temperatures that ranged from 99 to 101 F. and averaged 100 F. Leukocytes in the blood of five sick boys ranged from 6,200 to 9,600 per cu. mm. Vomitus and stools were free of common enteric pathogens.

Recovery ordinarily was complete within 24 hours, and no boys remained in the hospital more than two days. Eight members of the football team, ill on Friday

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From the Department of Epidemiology, Harvard School of Public Health, 695 Huntington Ave., Boston.

[1] Rischel, A.: Epidemic Nausea, Ugesk. f. læger. **97**:1285, 1935. Henningsen, E. J.: Peculiar Epidemic in Roskilde in December 1935, Ugesk. f. læger. **98**: 45, 1936.

[2] Miller, R., and Raven, M.: Epidemic Nausea and Vomiting, Brit. M. J. **1**: 1242, 1936. Gray, J. D.: Epidemic Nausea and Vomiting, Brit. M. J. **1**:209, 1939.

[3] Reimann, H. A.: Infectious Diseases: Tenth Annual Review of Significant Publications, Arch. Int. Med. **74**: 280 (Oct.) 1944.

[4] (*a*) Gordon, I.; Ingraham, H. S., and Korns, R. F.: Transmission of Epidemic Gastroenteritis to Human Volunteers by Oral Administration of Fecal Filtrates, J. Exper. Med. **86**: 409, 1947. (*b*) Smillie, J. W.; Howitt, B. F., and Denison, G. A.: An Epidemic of Acute Watery Diarrhea in Alabama, Pub. Health Rep. **63**: 233, 1948. (*c*) Cumming, J. G.: Epidemic Diarrhea of Newborn Infant, J. Pediat. **34**: 711, 1949. (*d*) Abramson, H., and Fuerst, H. T.: An Outbreak of Nausea, Vomiting and Diarrhea on a Maternity Service: Transmitted to a Child Caring Institution and to Private Homes, Pediatrics **2**: 677, 1948. (*e*) Gordon, I.; Ingraham, H. S.; Korns, R. F., and Trussell, R. E.: Gastro-Enteritis in Man Due to a Filtrable Agent, New York State J. Med. **49**: 1918, 1949.

night, were able to play most of the Saturday afternoon game—and to win. Active treatment was rarely necessary; for those committed to play football liberal ingestion of sugar-salt solutions was beneficial, and judicious handling on the field was necessary.

EPIDEMIOLOGY

The main part of the outbreak took place within a four day period, October 17 to 21, with a distribution of cases by four hour intervals as shown in figure 2. Primary and secondary peaks of incidence are shown to be 24 hours apart. Both occurred during the late night and early morning hours.

The data of tables 1 and 3 show a distribution of cases among members of form 3 (dormitory 5) that differs significantly from that of the school as a whole and from form 6 (dormitories 10 and 11), whether considered by form or dormitory assignment. The differing distributions shown graphically in figure 3 are inconsistent with mass infection spread from a common source, such as a common meal. The data support the concept of dissemination in this outbreak through personal contact.

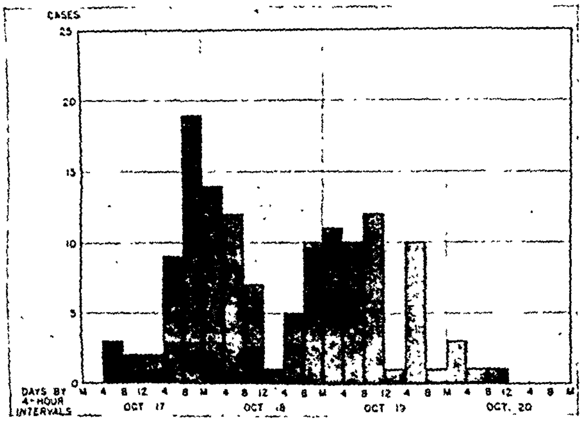

Fig. 2.—Distribution of cases by four hour intervals during the epidemic diarrhea outbreak at St. Mark's school in 1947.

Illnesses among employees and faculty and their families gave further evidence of contact dissemination. The hospital cleaning woman left the school at 11 a. m. October 17, vomited and had diarrhea at 6:10 p. m. Her adolescent daughter, who had not visited the school, awoke ill at 2 a. m. October 19. The interval was approximately 32 hours.

An instructor became ill at 5:30 a. m. October 18. His wife was ill at 8 a. m. October 21, and a son living at home became ill at 8 p. m. The intervals were 74 and 86 hours respectively.

Another instructor was ill at 6:30 a. m. October 18. A 10 year old girl who had come to visit the family on the previous afternoon became ill at 5 a. m. October 21. This was 70 hours after the onset of her host's illness and about 86 hours after arrival.

The school secretary's elder son, a student at the school, became ill at 9 a. m. October 20 and went home at about noon to remain through the following day. He was nursed by his mother who, in turn, had symptoms at 5 a. m. October 24, about 3½ days later. At 3:30 p. m. October 27 her youngest son, not a student at St. Mark's, became ill 82 hours after his mother.

EXPERIENCE OF OTHER SCHOOLS

That this kind of an outbreak is not an isolated event is suggested by correspondence with physicians of 20 other boarding schools in the northeastern United States. Twelve of them reported outbreaks of diarrheal disease between October 1947 and December 1948. The records of daily admissions, as shown in table 2, are similar to those at Saint Mark's, as were the clinical accounts and the lack of association of illness with an identifiable organism or common source of infection.

COMMENT

Explosive outbreaks of enteritis are always suspected of being caused by ingestion of food or water contaminated by a chemical or bacterial agent. This usually results in a tacit, if unproved, implication that the kitchen is at fault. With no relaxation of food preparation techniques or measures to assure purity of water and milk, good administrative control requires that gastroenteric illnesses not due to food handling are to be differentiated from those that are.

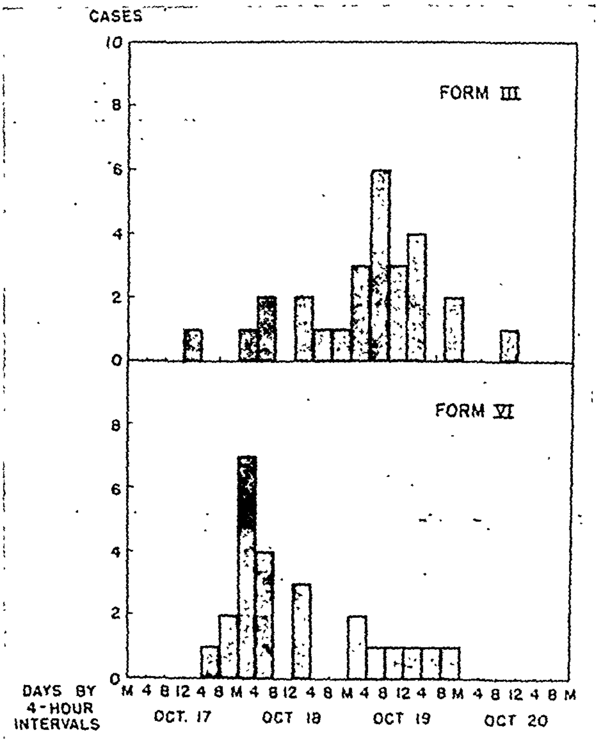

Fig. 3.—Distribution of diarrhea cases by four hour intervals in forms 3 and 6 during the school's four day outbreak.

The syndrome of *nausea, vomiting* and *diarrhea* described here is distinguished from food-borne outbreaks by epidemiological characteristics. As with influenza, clinical diagnosis of sporadic cases is impossible. Similar outbreaks have been described as occurring in nurseries,[5] in mental institutions [6] and in the general population.[7] Although there is no way of knowing whether the same etiological agents are at work, evidence that viruses are

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5. Reimann.[3] Smillie, Howitt and Denison.[4b] Cumming.[4c]
6. Abramson and Fuerst.[4d] Gordon, Ingraham, Korns and Trussell.[4e]
7. Gordon, Ingraham and Korns.[4a] Britten, S. A.; Rubenstein, A. D.; Raskin, N., and Strassmann, G.: Epidemic Diarrhea of Unknown Cause, Unpublished data.

involved has assumed prominence [8] as the severer enteric diseases of bacterial origin have come under control.

Within a closed community recognition of this illness depends on epidemiological observations and, in particular, the pattern of spread through the population. Due to its abrupt appearance, the large numbers involved and the shortness of its course, the usual recording of daily case incidence is likely to provide too coarse a scale. Arrangement of cases by four-hourly intervals served best, in this instance, to illustrate the pattern of spread. Search for ambulatory patients serves to indicate the extent and severity of the epidemic and to complete the pattern of spread.

TABLE 1.—*Epidemic Diarrhea Cases by Eight Hour Periods and by School Form in an Exposed Population of 193, St. Mark's School, Oct. 17-20, 1947*

	Cases						
		School Form					
Time of Onset	Total	1	2	3	4	5	6
Total at risk	193	17	25	33	28	45	45
Total cases	139	12	21	29	16	30	31
October 17, midnight	3	1	1	..	..	1	..
8 a. m.	4	..	..	1	..	2	1
4 p. m.	28	2	4	1	5	7	9
October 18, midnight	26	1	6	2	2	8	7
8 a. m.	8	1	1	3	..	..	3
4 p. m.	15	1	2	4	2	2	4
October 19, midnight	21	..	1	9	5	4	2
8 a. m.	13	..	3	4	2	2	2
4 p. m.	11	4	3	2	..	1	1
October 20, midnight	4	..	..	1	..	2	1
8 a. m.	1	..	..	..	..	1	..
4 p. m.	...	..	..	..	..	..	..
Time unknown	5	2	..	2	..	..	1

TABLE 2.—*Epidemic Diarrhea in 13 Schools of Northeastern United States, 1947-1948*

School	Date of Onset	School Population	Total	Infirmary Admissions by Day of Outbreak 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Hill *	Apr. 19, 1947	480	34	1	0	0	10	4	11	4	1	2	1	..	..	..	..	..	..	..	..	..	..	..
St. Mark's	Oct. 17, 1947	193	61	10	7	17	8	0	3	9	4	0	2	0	1	..	..	..	..	..	..	..	..	..
Exeter	Oct. 26, 1947	730	60	3	17	4	2	3	3	2	1	2	3	0	1	2	0	0	4	6	5	2	..	..
St. Paul's	Nov. 3, 1947	445	61	51	28	31	17	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Eaglebrook	Nov. 11, 1947	135	21	5	0	2	1	0	2	4	0	2	0	0	0	1	2	0	2	..	..	..	..	..
Mercersburg	Nov. 28, 1947	460	74	16	2	2	3	4	5	3	7	2	3	6	5	2	4	3	4	3	..	..	..	..
Proctor	Dec. 1, 1947	75	61	1	20	23	13	2	0	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Choate *	Jan. 18, 1948	530	106	4	11	8	5	3	4	9	4	4	4	1	4	9	6	7	12	3	5	2	..	..
Governor Dummer	Jan. 24, 1948	210	46	1	1	1	3	0	0	5	7	1	5	5	5	1	1	4	2	2	0	1	0	1
South Kent	Jan. 14, 1948	120	42	2	1	0	2	7	3	5	10	4	2	1	0	2	0	2	0	1	..	..	..	..
Kent	Feb. 8, 1948	300	31	14	10	2	1	4	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mount Hermon	May 1948	500	54	3	4	0	0	2	4	2	3	1	1	8	9	6	4	3	1	2	1	..	..	..
Groton	Dec. 3, 1948	200	76	14	14	12	12	2	8	0	4	6	4	..	..	..	..	..	..	..	..	..	..	..

* Data include ambulatory patients.

There is need for further investigation of cause, for at present it is impossible to prove or disprove the relation of one outbreak to another in different sections of the country and components of the populations or to recognize the sporadic case. Such recognition would be of more than academic interest should the highly fatal attacks of epidemic diarrhea that strike the newborn and the aged be due to the same biological agents as those of school children. This point is developed by Gordon and Rubenstein in their analysis of epidemic diarrhea of the newborn as a disease entity [9]: "The difficulty lies in lack of information as to whether infection is limited to the age group concerned or is more widely distributed in the population, perhaps manifesting itself in other clinical forms or as inapparent infection by reason of acquired resistance." Identification of the agent or agents and the development of a specific diagnostic test would be long steps toward clarification of the broad problem.

SUMMARY AND CONCLUSIONS

An outbreak of epidemic nausea, vomiting and diarrhea of unknown cause occurred at a boarding school for boys near Boston in October 1947. Clinically and epidemiologically it may be classified as that entity described by Danish and British investigators in 1935-1936 and later by Reimann and others. Analysis has been made of its behavior in a boarding school for 193 boys aged 12 to 18 and its spread to faculty families. The experience of 13 boarding schools with similar outbreaks has been summarized for 1947-1948.

Epidemic diarrhea among adolescent males is a distressing, but mild, short-lived disease disseminated by personal contact. Recognition early in an outbreak of enteric symptomatology will obviate the urgent sanitary measures required for food poisoning. The four hour case incidence record comprising ambulatory as well as hospitalized patients is a useful epidemiological procedure aiding recognition of the disease.

TABLE 3.—*Cases by Eight Hour Periods and by Dormitory in an Exposed Population of 193, St. Mark's School, Oct. 17-20, 1947*

	Cases											
		Dormitory										
Time of Onset	Total	1	2	3	4	5*	6	7	8	9	10†	11†
Total at risk	193	24	23	17	9	26	11	15	7	17	22	22
Total cases	139‡	15	20	11	6	21	6	10	4	12	13	17
October 17, midnight	3	1	1	1	..	..	..	..	..	..	..	..
8 a. m.	4	..	..	1	..	..	1	..	..	1	..	1
4 p. m.	26	5	3	2	2	..	1	5	..	1	2	5
October 18, midnight	25	1	6	..	1	2	..	1	..	8	3	3
8 a. m.	8	2	..	..	..	1	2	..	..	..	2	1
4 p. m.	11	1	2	..	1	2	1	..	..	1	2	1
October 19, midnight	22	..	1	2	..	9	..	3	2	..	2	3
8 a. m.	17	..	4	3	2	5	..	..	2	..	..	1
4 p. m.	9	4	2	..	..	1	1	..	..	..	..	1
October 20, midnight	4	..	1	1	..	..	..	1	..	..	1	..
8 a. m.	1	..	..	..	..	..	..	..	..	1	..	..
4 p. m.	..	..	..	..	..	..	..	..	..	..	..	..
Time unknown	5	1	..	1	..	1	..	..	..	..	1	1

* Most occupants of this dormitory are from school form 3.

† Occupants are from school form 6. Nine members of this form are quartered in other dormitories as prefects.

‡ Total includes 4 day students.

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[8] Reimann.[5] Abramson and Fuerst.[4d] Reimann, H. A.: Infectious Diseases: Fourteenth Annual Review of Significant Publications, Arch. Int. Med. **82:** 468 (Nov.) 1948. Light, J. S., and Hodes, H. L.: Studies on Epidemic Diarrhea of the New-Born: Isolation of a Filtrable Agent Causing Diarrhea in Calves, Am. J. Pub. Health **33:** 1451, 1943. Reimann, H. A.; Hodges, J. H., and Price, A. H.: Epidemic Diarrhea, Nausea and Vomiting (Viral Dysentery?), Proc. Soc. Exper. Biol. & Med. **59:** 8, 1945. Light, J. S., and Hodes, H. L.: Isolation from Cases of Infantile Diarrhea of a Filtrable Agent Causing Diarrhea in Calves, J. Exper. Med. **90:** 113, 1949.

[9] Gordon, J. E., and Rubenstein, A. D.: Epidemic Diarrhea of the Newborn, Am. J. M. Sc. **220:** 339, 1950.

PERIODIC ARTHRALGIA IN TWENTY-THREE MEMBERS OF FIVE GENERATIONS OF A FAMILY

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and
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A disorder characterized by pain in the joints at regularly recurrent short intervals over many years with no other disturbances and without permanent disability has been recognized as an entity for over a century. Several reviews of the subject have been made.[1] It has been called hydrops genus intermittens, hydrops articulorum intermittens and intermittent hydrarthrosis. More recently the name periodic arthralgia has been used, because effusion into the joints is not always present and the disorder seems to be one member of a group of periodic disturbances. They are characterized respectively by regular recurrences of fever, abdominalgia, arthralgia, neutropenia, purpura and edema.[2]

More than 100 reports of cases of periodic arthralgia have been published, mostly in European journals. It is certain, however, that many more instances occur but are not discovered. Victims of the mildest form may never seek medical advice, or, because of its characteristic long duration, lack of disability or deformation and absence of other tangible evidence of disease, the disorder may be regarded as a neurosis. Patients in seeking relief may go from physician to physician so as to preclude prolonged observation and registration of clinical data, which bring to light its regular periodicity.

Periodic arthralgia is characterized by strikingly regular recurrences of pain and often swelling, usually of one or both knees, and of other joints of the extremities as well. In some instances only stiffness and in others effusion into the joint may be noted. The episodes usually recur at regular intervals of seven to 21 days, last several days, usually without fever or other symptoms or signs, and disappear until the next predictable bout. In some patients recurrences come at irregular short or long intervals. The disorder may begin at any time of life, and the intervals may shorten or lengthen. It may last a lifetime or may disappear either spontaneously or in rare instances after certain forms of therapy. Rarely do permanent injury to the joints and other effects on the general health occur. Biopsy study revealed edema of the synovial membrane with or without monocytic cell infiltration of the tissue.[3] Effusion of serous fluid, when present, may contain over 1,000 cells per cubic millimeter, and either polymorphonuclear cells or lymphocytes predominate.[1]

Our attention was called to the group of cases reported by a query published in THE JOURNAL requesting suggestions in regard to periodic pain in the extremities suffered by many members in five generations of a family (chart).[5] By the courtesy of Dr. F. R. Janney of Wauwatosa, Wis., two members of the family came to us for study. Ten others were interviewed at their homes in Chicago, and six living elsewhere replied to a questionnaire. Most of them had become accustomed to their periodic discomfort and, since it was not disabling or deforming, gave little attention to it. It was accepted stoically as a familial trait.

REPORT OF CASES

The following two patients, mother and daughter, came to the hospital for study.

CASE 1 (IV-13).[6]—Mrs. E. S., age 32, had pains in her joints since she was 6 months old. They recurred two or three times a week and affected the large joints of her extremities singly, in various combinations or all at once. The pain appears suddenly and may be dull or severe for five to 30 minutes. In a single episode there may be only one or as many as 20 bouts of pain, followed by three or four days of freedom from discomfort. The joints are always normal in appearance and nonpainful on motion. No other symptoms or signs occur except an urge to defecate during an episode, and occasionally immediate relief of pain is obtained after defecation. It was stated that with advancing age the frequency of the episodes had diminished to three in a month. Episodes of arthralgia continued unchanged during pregnancy. She bruises easily. Her past history is irrelevant except for urticaria four years ago. Physical examination revealed no abnormalities except for a few old ecchymotic areas on the right thigh and leg.

Laboratory Studies.—The blood count, sternal marrow and urinalysis showed no abnormalities. The bleeding time, clot retraction and clotting time were normal. The following measurements were made on the blood: uric acid, 1.9 mg., sugar 80 mg., calcium 10 mg., phosphorous 3 mg., urea nitrogen 9 and 19 mg., bilirubin 0.5 mg., total protein 7.4 mg., albumin, 5.9 Gm. and globulin 1.5 mg. The sedimentation rate (Cutler method) was 9 mm. in one hour. The result of urea clearance test was 57 per cent. A basal metabolic rate registered —1. The quantitative urine gonadotrophins were less than 6 units on three tests, the urine estrogens were 132 and 64 rat units and the 17-ketosteroids 3.6, 5 and 4.4 mg. A stain of a vaginal smear by Shorr's technic showed a slight to moderate estrogenic effect. Roentgenograms

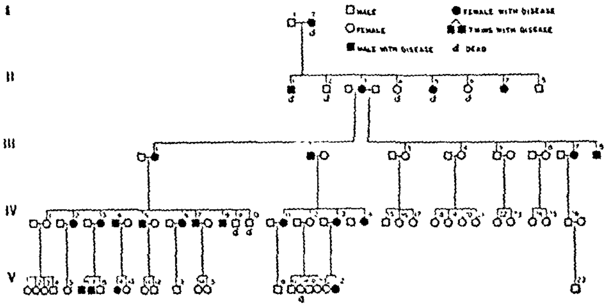

Chart showing periodic arthralgia in five generations of one family.

From the Jefferson Medical College and Hospital.

[1] (*a*) Bierring, W. L.: *Intermittent Hydrarthrosis,* J. A. M. A. **77**: 785-788 (Sept. 3) 1921. (*b*) Comroe, B. I., and others: Arthritis and Allied Conditions, ed. 4, Philadelphia, Lea & Febiger, 1949, pp. 654-658.

[2] Reimann, H. A.: Periodic Disease: Periodic Fever, Periodic Abdominalgia, Cyclic Neutropenia, Intermittent Arthralgia, Angioneurotic Edema, Anaphylactoid Purpura and Periodic Paralysis, J. A. M. A. **141**: 175-183 (Sept. 17) 1949. Periodic Disease, to be published.

[3] Ghormley, R. K., and Deacon, A. E.: Synovial Membranes in Various Types of Arthritis: A Study by Differential Stains, Am. J. Roentgenol. **35**: 740-746, 1936. Krida, A.: Intermittent Hydrathrosis of the Knee Joint: Report of 2 Cases Apparently Cured by Synovectomy, Together with Pathological Findings, J. Bone & Joint Surg. **15**: 449-462, 1933.

[4] Collins, D. H.: The Pathology of Synovial Effusions, J. Path. & Bact. **42**:113-140, 1936.

[5] Familial Periodic Pain, Queries and Minor Notes, J. A. M. A. **139**: 1123 (April 16) 1949.

[6] The cases presented are numbered to correspond with the patients' places in the genealogical chart and in the table. The Roman numbers indicate a generation; the arabic ones, the respective members of it.

of the chest and extremities showed no abnormalities. An eight lead record in an electroencephalogram was a normal one. An epinephrine tolerance test gave a normal result; the absolute eosinophil count before injection was 203, and three hours after injection of 0.5 cc. of a 1 to 1,000 solution of epinephrine hydrochloride it was 44.

On the evening of admission, Oct. 4, 1949, the patient had two attacks of pain in both elbow and wrist regions and the left knee. Each lasted about 10 minutes. On October 5 there was severe pain in the left knee and ankle, which lasted for 20 minutes. The patient was observed at this time, but nothing unusual was noticed. She was then free of arthralgia until October 7, when a dull, steady ache developed in her left knee for about two hours. On October 10 she had four bouts of pain in the right elbow and wrist. On October 11 there were two short attacks of pain in the right knee and in the left elbow. On October 13 the finger and wrist joints were affected. The pain shifted from joint to joint and up and down the left arm for approximately one hour. Tripelennamine (pyribenzamine®) hydrochloride, 50 mg., was given, after which the patient had itching of the legs and chilly sensations and felt weak. Within an hour afterward the pain disappeared. It was the patient's impression that tripelennamine hydrochloride was not so effective as acetylsalicylic acid (aspirin) in providing relief from pain. The patient returned to her home with the request to register her attacks for two months. Although the episodes were said to occur three times a month, the record showed five episodes in October, one extending over four days, and seven in November, occurring at intervals of six, two, four, four, four and three days.

Case 2 (V-22).—R. S., aged 5, is the daughter of E. S., case 1 (IV-13), who stated that arthralgia began at the age of 6 months. The pain recurred four or five times a week but became less frequent, appearing now two or three times a week. The arthralgic symptoms are so similar to those of the mother that detailed description is unnecessary. They are occasionally so severe as to wake the patient from sleep. However, certain differences occur in this patient as compared to all other affected members of the family: there is occasional sudden flushing of the cheeks before the onset of pain, or during severe attacks red blotches appear on the face, and abdominal pain occasionally accompanies the arthralgic episodes.

Examination revealed no abnormalities except a few brown spots of resolving ecchymoses on the legs and arms. The same laboratory studies were made as were done of the mother, and no abnormalities were revealed except in the bleeding time, which was more than 10 minutes in two tests. An eight lead sleep-record electroencephalogram showed a focus involving electrodes no. 15 and to a lesser extent nos. 13 and 14. It was thought to be the result of trauma sustained at birth.

During hospitalization arthralgia occurred in various joints, including the toes and fingers, in various combinations but usually in the left knee and sometimes in the toes alone. Recurrences were so frequent that only one to three-day intervals of freedom from pain were enjoyed. Pain lasted five to 25 minutes and was often severe enough to cause the child to cry. In a few episodes the face was flushed, and in others small urticarial welts appeared on the forehead. Acetylsalicylic acid relieved the pain, but tripelenamine hydrochloride had no effect.

The following patients were observed at their homes.

Case 3 (III-1).—Mrs. M. H., aged 61, had 10 children, two of whom died at ages 1½ and 6 years, and neither had pains in the joints. Of eight living children, seven have periodic arthralgia; four are males, three females.

Mrs. M. H. was told that her episodes began in infancy, and she remembers them after the age of 5. They recurred three or four times a week but gradually came at longer intervals of once or twice a week and finally about once a month. The pains decreased in intensity with age and vanished a year after menopause began at age 47.

Arthralgia would appear in any large joint of the extremities, severe enough at times to wake her from sleep. The small joints were never affected. One or several joints were involved simultaneously or in succession. Pain usually lasted about 30 minutes. Black and blue spots appeared in the skin around the affected joint 24 hours later. No swelling, redness or heat were ever noted. The severity of any episode had no influence on the length of the interval before the next one. Acetylsalicylic acid and massage relieved the pain. Pregnancy had no influence on the recurrence or severity of the episodes. The patient began to have asthma at age 43, which persists. She bruises easily.

Her first child, now aged 40, and this daughter's four children have no arthralgia.

Case 4 (IV-2).—Mrs. E. F., aged 38, was told that arthralgia began at 6 months of age and recurred once or twice a week. The episodes gradually diminished in intensity and in frequency in the third decade, averaging once or twice a month. Ecchymoses appeared in the skin over the painful joints in childhood. As in case 3 (III-1) the same joints were affected singly or in combination in an episode. Attacks continued during pregnancy. She bruises easily. Her child, aged 1, is free from arthralgia.

Case 5 (IV-3).—In Mrs. E. M., aged 36, pains also began at 6 months of age, recurring two to three times a week. The periodicity lengthened after the onset of menstruation to once or twice a month. At age 16, an attack of jaundice lasting a month did not influence the nature of the episodes. The arthralgic episodes are identical with those in case 3 (III-1) and last five to 60 minutes. The pain feels as though something were boring out of the bone. In youth, black and blue spots occurred around the affected joints in severe episodes. As in case 1 (IV-13), an urge to defecate occasionally occurs during an episode followed by relief from pain. She is occasionally wakened from sleep by pain. Episodes recurred unchanged during three pregnancies. She bruises easily.

The patient's male twins, aged 5 (V-6 and V-7), both have arthralgia with black and blue spots recurring two or three times a week, first noted at 18 months of age. One twin has had asthma since the age of 18 months. Another son, aged 11 months, has had no arthralgia up to the present.

Case 6 (IV-4).—In Mr. A. H., aged 35, as in the others, pains developed at 6 months, which were most severe between 10 and 15 years of age. They recurred once or twice every two or three weeks. After age 19 the severity lessened, and the intervals lengthened to twice a year or less. Pains are not in the joints but in the mid forearm, mid calf and mid thigh regions and extend to but not into the nearest joint. The pain is boring and lasts 30 to 90 minutes. Pain may recur in the same areas in one episode.

The patient has two children; one, aged 5, is free from arthralgia, but in the daughter, D. H. (V-9), aged 6, pains began in early infancy. At first they recurred every two to three days, but now only once every two months. An episode lasted a day or two, then none appeared for two weeks, or three or four would recur on successive days. Attacks occurred day or night but usually at night, severe enough to wake the child and cause her to cry. In contrast with other relatives, pain is limited to her left leg. It appears, as in the father, in the mid portion of the tibia and radiates as far as the knee. No other joints ever are painful. No purpura occurs, but the skin bruises easily. Ecchymoses unassociated with trauma are usually present on the legs, but no other hemorrhagic tendency is obvious.

Case 7 (IV-5).—Mr. R. H., aged 32, has episodes that are like those of the others. Attacks of pain now recur once in two months, and purpuric spots appear around the involved joints. He is a dancer, and his legs are affected more severely than his arms. Neither of his two children, aged 2 and 6, have arthralgia.

Case 8 (IV-6).—Mrs. S. H., aged 28, has a history almost identical with those of case 4 (IV-2) and case 5 (IV-3). Her son, aged 7, has no pains.

Case 9 (IV-7).—In Mr. B. H., aged 26, pains were first noted at 6 months of age, recurring once or twice a week. In after years the frequency diminished to once a week, but the pain increased in intensity until age 21. Since then they recur once or twice a month. Pain is mild at first, reaches its worst in 10 minutes and lasts 15 to 60 minutes. It is relieved by acetylsalicylic acid. The elbows, wrists, knees and ankles are usually affected, and, in contrast with other relatives, the fingers and toes are occasionally painful. For about a year he has noticed that during the severest pains his hands and feet blanch and become cold for about 20 minutes. No ecchymoses occur, and he does not bruise easily. An episode leaves him feeling exhausted.

His two girls, age 4 months and 2 years, have no arthralgia.

CASE 10 (IV-8).—*In Mr. R. H., aged 19, attacks were noted at 6 months of age.* They recurred two or three times a week but have diminished to once a week. There may be several episodes over a period of a few days, then none for a week. The shoulder, elbow, knee, ankle and the metacarpal and metatarsal joints are affected in any combination or singly. For a period when he was approximately the age of 10, purpuric spots were noted around the affected joints. The same curious urge to defecate during the episodes and relief of pain thereafter occur as noted in other relatives. Acetylsalicylic acid also relieves the pain.

The following records of other afflicted family members were obtained on mailed questionnaires.

CASE 11 (II-3).—Mrs. M. B., the matriarch aged 86, had arthralgia beginning in childhood. For the past 30 years, pains have occurred less often and less severely. The characteristics of the episodes are similar to those in her descendants. Little is known about her mother (I-2) except that she had similar periodic arthralgia. The same is true of siblings II-1, II-5 and II-7.

Summary of Cases of Periodic Arthralgia

Case	Patient	Sex	Age, Yrs.	Age at Onset	Frequency at Onset	Later Frequency	Outcome	"Black and Blue Spots"	Remarks
1 (IV-13)	E. S.	F	32	6 mo.	2-3 X, wk.	Same	....	0	Urge to defecate, with relief; pregnancy no effect; urticaria
2 (V-22)	R. S.	F	5	6 mo.	4-5 X, wk.	2-3 X, wk.	....	0	Face flushes; abdominal pain; urticaria
3 (III-1)	M. H.	F	61	Infancy	3-4 X, wk.	1 X, mo.	Ceased, age 47	+	Pregnancy no effect; asthma
4 (IV-2)	E. F.	F	38	6 mo.	1-2 X, wk.	1-2 X, mo.	....	+	Pregnancy no effect
5 (IV-3)	E. M.	F	36	6 mo.	2-3 X, wk.	1-2 X, mo.	....	+	Pregnancy and jaundice no effect; urge to defecate, with relief
V-6 *	R. M.	M	5	18 mo	2-3 X, wk.	Same	....	+	....
V-7 *	W. M.	M	5	18 mo.	2-3 X, wk.	Same	....	+	Asthma
6 (IV-4)	A. H.	M	35	6 mo.	1-2 X, 2-3 wk.	2 X, yr.	Less severe	0	Pain in thighs, calves and forearms
V-9 *	D. H.	F	6	6 mo.	2-3 X, wk.	1 X, 2 mo.	....	0	Left leg only
7 (IV-5)	R. H.	M	32	6 mo.	2-3 X, wk.	1 X, 2 mo.	....	+	....
8 (IV-6)	S. H.	F	28	6 mo.	1-2 X, wk.	2 X, mo.	....	+	Pregnancy no effect; urge to defecate
9 (IV-7)	B. H.	M	26	6 mo.	1-2 X, wk.	1-2 X, mo.	Less severe	0	Blanched hands and feet in episode
10 (IV-8)	R. H.	M	19	6 mo.	2-3 X, wk.	1 X, wk.	....	+	Urge to defecate, with relief
11 (II-3)	M. B.	F	86	Childhood	Unknown	Less	....	0	Duration of 80+ years
I-2 †	......	F	..	......	....	....	....	..	....
II-1 †	......	M	..	......	....	....	....	..	....
II-5 †	......	F	..	......	....	....	....	..	....
II-7 †	......	F	..	......	....	....	....	..	....
12 (III-2)	E. B.	M	58	Childhood	....	....	Ceased, age 16	0	Urge to defecate, with relief
13 (III-7)	F. A.	F	46	3 yrs.	1-3 X, wk.	Few times a year	Less severe	+	....
14 (III-8)	F. B.	M	44	Childhood	....	Less	Seldom in last 10 years	+	Pain in entire extremity
15 (IV-11)	E. S.	F	36	3 wks.	2-3 X, wk.	3 X, mo.	....	0	Pregnancy no effect
16 (IV-14)	D. N.	F	30	3 wks.	2-3 X, wk.	3 X, mo.	Less severe, not so often	0	Urge to defecate, with relief

* V-6 and V-7, children of E. M., case 5 (IV-3), and V-9, child of A. H., case 6 (IV-4), are not reported as separate cases in the text but are considered along with their respective parents.

† Nothing is known about these patients except that they had the disease.

CASE 12 (III-2).—In Mr. E. B., aged 58, arthralgia began in infancy and ceased at age 16. There was an urge to defecate in some episodes.

CASE 13 (III-7).—In Mrs. F. A., aged 46, pains started at age 3 or 4 and recurred several times a week for years. They have diminished in intensity and frequency and now appear a few times a year. Black and blue spots recurred for many years, but no relation to the arthralgia is stated in the questionnaire.

CASE 14 (III-8).—Episodes of arthralgia in Mr. F. B., aged 44, began in childhood but are lessening in frequency and severity. Pain seems to be not in the joints but in an entire limb. It may be precipitated by strenuous exercise. Black and blue spots occasionally appear on an affected extremity.

CASE 15 (IV-11).—In Mrs. E. S., aged 36, pains were said to have begun at the age of 3 weeks, coming two or three times a week. They gradually lessened in severity and came less often, at present about three times in a month. Arthralgia as in case 14 (III-8) can be induced by overexertion. The knees, ankles, shoulders, elbows and wrists are affected usually one at a time. In youth, all would at times be involved at once. Pregnancy did not influence the episodes.

CASE 16 (IV-14).—In Mrs. D. N., aged 30, pains were said to have started at the age of 3 weeks. They are similar to those of other victims and are now less frequent and less severe. There is often an urge to defecate during the episodes.

COMMENT

A group of 23 instances of periodic arthralgia as a dominant, nonsex-linked, hereditary trait in five generations of a family is described (chart and table). Evidence of heredity seems to be rare in periodic arthralgia and has been reported in only three other instances.[7] Many examples of hereditary periodic edema (angioneurotic edema), however, have been reported in several groups of four or five generations of families.[8] The disorder in the family described here is strikingly uniform in its behavior and began in early infancy in most victims. Among 19 members from whom information was obtained it lasted for life in many, about 80 years in one and lessened in frequency and severity in most of them. Nine bruised easily, but no abnormalities in the blood were discovered to account for it.

The occurrence of hemorrhagic spots raises the question of Schönlein's purpura with arthralgia (peliosis rheumatica),[9] which usually is grouped with Henoch's purpura (purpura with abdominalgia) as a syndrome called anaphylactoid purpura. Both arthralgia and abdominal pain were present in each of four of Henoch's original patients,[10] but apparently no attention was paid to his observation that the disorder characteristically comes in attacks at intervals of eight days or more. The curious urge to defecate during the episodes in six of the patients here described and abdominal pain in case 2 (V-22) further suggest the relation of these disorders. The relation of anaphylactoid purpura to angioneurotic edema was suggested by Osler. Schlesinger noted the resemblance of angioneurotic edema to intermittent hydrarthrosis [7c] and these were grouped with Kahlmeter's allergic rheumatism, Solis-Cohen's angioneural arthrosis and Hench's palindromic rheumatism by Weber.[11] Reimann finally included them as forms of periodic disease, together with a variety of other regularly recurrent disorders like periodic fever, periodic abdominalgia and periodic neutropenia.[2] Favoring this arrangement are a similar temporal periodic regularity of the various entities and a degree of overlapping signs and symptoms among them, as if there were a unity of origin. For example, arthralgia may recur with episodes of periodic fever, periodic abdominalgia [12] or periodic neutropenia, and, as in this report, purpura and abdominal pain occasionally accompany periodic arthralgia. Each separate group may represent only a different manifestation of the same underlying cause, and the predominant feature gives the name to the respective form it takes.

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[7] (*a*) Blanc, E.: Observation d'hydrarthrose intermittente héréditaire, *Loire méd.* **17**: 287-293, 1898. (*b*) Frenkel-Tissot, H. C.: Familiärer Hydrops intermittens und Purinstoffwechsel, Ztschr. f. Exper. Path. u. Therap. **18**: 118-130, 1916. (*c*) Schlesinger, H.: Über den Hydrops articulorum intermittens und seine familiäre Form, Wien. klin. Wchnschr. **39**: 68-72, 1926.

[8] Osler, W.: Hereditary Angio-Neurotic Edema, Am. J. M. Sc. **95**: 362-367, 1888. Schlesinger, H.: Über die familiäre Form des akuten Circumscripten Oedem, Wien. klin. Wchnschr. **6**: 335-338, 1898. Crowder, J. R., and Crowder, T. R.: Five Generations of Angioneurotic Edema, Arch. Int. Med. **20**: 840-852 (Dec.) 1917.

The inclusion of gout as a member of the group of periodic diseases was suggested,[13] and indeed Grandidier in 1872 [14] described a case of intermittent arthralgia of the knee recurrent every 14 days for years in a man from a gouty family. Gout was regarded by His [15] as the cause of intermittent swelling of the joints, and angioneural arthrosis may be mistaken for gout.[16] However, gout is rarely mentioned in any of the other reported cases of periodic arthralgia, and apparently no one has registered regularly recurrent episodes of gout.

Several features of the disorder in members of the family herein described vary from the usual picture of periodic arthralgia. The episodes do not occur at punctually regular intervals; concurrent purpuric spots appear in many of the victims, and in two instances pain was in the arm or leg, not in the joints. Pregnancy had a striking effect in the relief of the symptoms in intermittent arthralgia,[17] but in the present series neither pregnancy in six patients or jaundice in one had any influence. Nevertheless, there are enough characteristics in common to warrant the inclusion of the disorder under the heading of periodic arthralgia.

The cause of periodic arthralgia is unknown, but allergy has been incriminated oftenest. In the family described here, asthma or urticaria were present in four members. Allergic features were also present in the arthralgic families described by Frenkel-Tissot [7b] and Schlesinger.[7c] Allergy indeed gives rise to the various symptoms and signs characteristic of all the periodic diseases listed except periodic neutropenia. Hypersensitivity may have been the cause in rare instances reported by others,[18] since the disorder disappeared after removal of an offending protein. However, in cases of periodic arthralgia or of anaphylactoid purpura, failure to discover evidence of hypersensitivity to any protein is a common experience.[19] Elimination diets and treatment with antihistaminic agents almost invariably fail to influence the disorder. It must be assumed, therefore, that "anaphylactoid" or allergic-like manifestations do not always indicate hypersensitivity to proteins, but may arise from other unknown causes. A vasomotor disturbance was suggested as the best explanation of the various clinical phenomena of periodic disease,[2] but it had already been suspected in 1880 by Seeligmüller (cited by Frenkel-Tissot),[7b] and in 1888 Fridenberg regarded periodic arthralgia as a neurosis of vasomotor origin.[17b] No one yet has offered a satisfactory explanation for the recurrences of the disorder over many decades.

SUMMARY

Periodic arthralgia affected 23 members of five generations of a family as a dominant hereditary trait. In one instance it has persisted for about 80 years. The disorder has the characteristics of the Schönlein-Henoch syndrome. Both probably are manifestations of the same underlying cause and represent variant forms of a group of periodic diseases. The cause of the condition and the reason for its long-continued recurrences are unknown, except that one may suppose the immediate cause to be a vasomotor disturbance, as suggested 70 years ago.

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[9] Schönlein, J. L.: Allgemeine und specielle Pathologie und Therapie, ed. 4, Lit.-Compt., 1839, pt. 2, p. 42.

[10] Henoch, E.: Über eine eigenthümliche Form von Purpura, Berl. klin. Wchnschr. **11**: 641-643, 1874.

[11] Weber, F. P.: Palindromic Rheumatism, Lancet **2**:931-933, 1946.

[12] Siegal, S.: Periodic Disease, Correspondence, J. A. M. A. **141**:738 (Nov. 5) 1949.

[13] Talbott, J. H.: Personal communication to the authors.

[14] Grandidier: Über Hydrops genus intermittens, Berl. klin. Wchnschr. **9**:266, 1872.

[15] His, W.: Angioneurotische Oedeme und intermittierende Gelenkschwellung, auf gichtischer Grundlage, cited by Frenkel-Tissot.[7b]

[16] Solis-Cohen, S.: On Some Angioneural Arthroses (Periarthroses, Pararthroses) Commonly Mistaken for Gout or Rheumatism, Am. J. M. Sc. **147**: 228-243, 1914.

[17] (a) Bierring.[1a] (b) Fridenberg, A. H.: A Rare Form of Vasomotor Disease: A Contribution to the Study of Hydrops Intermittens Articulorum, Med. Rec., N. Y. **33**: 657-663, 1888.

[18] Service, W. C.: Hydrarthrosis of Allergic Origin, Am. J. Surg. **37**: 121-122, 1937. Berger, H.: Intermittent Hydrarthrosis with Allergic Basis, J. A. M. A. **112**: 2402-2405 (June 10) 1939.

[19] Doan, C. A.: The Etiology and Management of the Hemorrhagic Diatheses, Ann. Int. Med. **31**: 967-988, 1949.

The Fate of Homografts.—Homotransplantation of human tissues has intrigued the medical profession almost since the beginning of our civilization. It was not idle curiosity that lured various investigators into this field but a desire to procure permanent survival of homografts, an accomplishment of great surgical importance. There are the fields of endocrinology, reconstructive surgery, orthopedics, plastic surgery and many others in which successful homotransplantation would open up new horizons in the treatment of deficiencies and defects. The reports in the literature on this subject have been conflicting. It is true that homografts take well and may remain viable for different period of time. Indeed, during the first few weeks homografts may be indistinguishable, grossly or histologically, from autografts. Most workers agree, however, that homografts do not survive permanently in the new host and sooner or later they disintegrate.—*Hamilton Baxter, M.D., and Martin A. Entin, M.D.*, Clinical Study of the Fate of Homografts in Man, *The American Journal of Surgery*, March 1951.

DERMATITIS FROM LOCAL ANESTHETICS

WITH A REVIEW OF ONE HUNDRED AND SEVEN CASES FROM THE LITERATURE

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and
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A localized dermatitis as a result of contact with a local anesthetic topically applied or a well generalized dermatitis as a result of becoming sensitized to the drug appears sufficiently often to warrant a review of the subject. Such an irritation almost always occurs because of a hypersensitiveness of the skin resulting from a previous contact to that particular local anesthetic. Among dentists, dermatitis of this type has appeared frequently on the hands and elsewhere from procaine (novocain®) often causing considerable disability before the causal factor was recognized. It is now a matter of common knowledge among dentists, and consequently comparatively few cases are reported in the literature at present.

Other cases of dermatitis are reported among users of ointments and creams containing local anesthetics, especially when used to relieve pruritus, and particularly in the presence of an already irritated skin. Such cases have been observed frequently by dermatologists since Mook's [1] report in 1920 but often are not reported in the literature. It is unfortunate that the interest and news value of many common medical problems may fall so low after a brief period when they flourish in the literature. Often reports on relatively common diseases appear so seldom in journals that one may conclude from the literature that the condition is relatively unusual. Both Fox [2] and Parkhurst [3] have expressed their surprise at the infrequency of reports on epidermal hypersensitivity reactions to local anesthetics when their occurrence is so relatively frequent. Thomas,[4] Howell [5] and Morris [6] have presented evidence as to the frequency and importance of these hypersensitivities.

The local reaction following the topical application of one of these preparations may appear only as redness and itching. Further application usually results in a gradual extension of the inflammation, with swelling, vesiculation, oozing, crusting and often marked discomfort. All too often, other areas appear as a result of the increase of the induced hypersensitiveness of the skin, with perhaps a merging of the patches to form a generalized dermatitis. The original condition for which the local anesthetic was applied is greatly exaggerated, and the convalescence is usually slow and protracted even with the most soothing treatment and careful handling of the individual patient. Such reactions may follow the application of any of these local anesthetics.

The various groups of substances have been reviewed with regard to cases reported in the literature since 1921, although in our opinion the number of cases reported here does not begin to indicate the total number of cases or the amount of disability from such applications. Over a period of years the list of substances used as local anesthetics has gradually increased and numerous names have been adopted for the many preparations having the characteristic of producing local anesthesia (table 1).

PROCAINE HYDROCHLORIDE

Thirty cases of procaine epidermal hypersensitivity appearing in the literature are presented in table 2.[7] Sixty-six per cent are confirmed by positive patch tests. After the first reports of one of us (C. G. L. in 1921) 53 per cent of the reported cases appeared in the following two years. It would seem that more than 47 per cent of the use of procaine and its epidermal reactions have taken place in the years 1923 to date. This suggests that the reporting of these cases was popular in 1921-1922, and that the reporting of reactions in the literature is a low index of the true incidence. In only six of these cases were patch tests with a limited number of substances done to determine collateral sensitivity. However, the wide reach of local anesthetic sensitivity in the procaine sensitive patient is sufficiently impressive in the cases studied to warrant caution.

Considering the great numbers of patients in which procaine inadvertently contacts the skin surface and the fact that 83 per cent of the reported cases appear in people who use it with great frequency (dentists and physicians), it appears that many exposures are required for a given person to develop procaine epidermal hypersensitivity reactions and that the condition is basically an occupational disease.

ORTHOFORM

Of the seventeen patients with epidermal hypersensitivity to orthoform (methyl *p*-amino-*m*-hydroxybenzoate, old orthoform) reported (table 3), only seven were given patch tests with new orthoform (methyl *m*-amino-*p*-hydroxybenzoate). All seven reacted positively to the new as well as the old orthoform. Schwarzschild had little

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This article has been abbreviated for publication in The Journal by omission of 11 tables. These will appear in the authors' reprints.

Read before the Section on Dermatology and Syphilology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

[1] Mook, W. H.: Skin Reactions to Apothesin and Quinin in Susceptible Persons, Arch. Dermat. & Syph. **1**: 651 (June) 1920.

[2] Fox, E. C.: Exfoliative Dermatitis from Butesin Picrate Ointment, Arch. Dermat. & Syph. **26**: 44 (July) 1932.

[3] Parkhurst, H. J., and Lukens, J. A.: Dermatitis Due to Butyn, J. A. M. A. **112**: 837 (March 4) 1939.

[4] Thomas, J. W., and Fenton, M. M.: Fatalities and Constitutional Reactions Following Use of Pontocaine, J. Allergy **14**: 145, 1943.

[5] Howell, J. B.: Contact Dermatitis: Analysis or Tabulation of All Cases Proved in Single Year, Arch. Dermat. & Syph. **53**: 265 (March) 1946.

[6] Morris, R. C.: Procaine Dermatitis, Correspondence, J. A. M. A, **77**: 1537 (Oct. 22) 1921.

[7] Patients reacting to epinephrine or other drugs in some procaine solutions were not included here.

difficulty in sensitizing his twelve subjects,[8] suggesting that hypersensitivity to the repeated topical application of orthoform might be frequent. Eight of these subjects[8] also were given patch tests with ethyl aminobenzoate (benzocaine), cycloform® (isobutyl paraaminobenzoate) and propaesin (paraaminobenzoic acid propyl ester). Only one subject had a positive reaction, and this person reacted positively to all three. Apparently cross sensitization here is not likely but does occur.

BUTAMBEN (BUTESIN®) PICRATE

Fourteen cases of epidermal hypersensitivity to butamben (butesin®) picrate are listed in table 4. In reading the descriptions of the cases of Sulzberger and Wise,[9] Fox[2] and Jackson,[10] one is impressed by the severity and long duration in the cases described. Fox and Jackson both point out the marked generalized "sensitization" reactions which may occur, and Oliver[11] states, "In patients allergic to that material I have seen most amazing generalized toxic dermatitis develop after the use of butesin picrate on minor injuries, cases in which there was no possibility of toxic products at the site of the wound being responsible." Trinitrophenol (picric acid) is a component of butamben picrate. Sensitivity reactions in some cases to the latter compound is probably based on a trinitrophenol sensitivity. Jackson[10] has described three cases of trinitrophenol sensitivity.

TETRACAINE (PONTOCAINE®)

Fourteen cases of epidermal hypersensitivity to tetracaine are shown in table 5. Thomas[4] made patch tests on 201 endoscopy patients, finding 20 with plus or 2 + reactions and three with suggestive reactions. Felton[4] patch-tested 49 controls with 2 per cent tetracaine, finding two with plus reactions and six with plus-minus reactions. Considering the incidence of hypersensitivity as indicated by the patients of Thomas and the controls of Felton, here again the literature would appear to give a low index of the occurrence of sensitivity.

So far as the cases of external epidermal hypersensitivity are concerned, tetracaine hypersensitivity seems to occur chiefly in ophthalmologists and their patients. Additional cases of tetracaine hypersensitivity are reported by Gans,[12] Gebb,[13] Mannheimer,[14] Marx,[15] Rauh,[16] Reitsch[17] and Sander-Larsen.[18]

DIBUCAINE (NUPERCAINE®) HYDROCHLORIDE

In addition to 11 cases of epidermal hypersensitivity to dibucaine (nupercaine®) listed in table 6, two cases[19] of general dermatitis have been reported from the widespread topical use of dibucaine. This agent is one of the most commonly prescribed creams for the relief of itching and has resulted in many cases of dermatitis which have not found their way into the literature. Its use should be restricted.

ETHYL AMINOBENZOATE (BENZOCAINE)

Among the eight cases (table 7) of epidermal hypersensitivity to ethyl aminobenzoate (benzocaine) Schwarzschild[8] and Paillard[20] studied the problem of collateral hypersensitivity and found it uniformly when it was sought. Sulzberger[21] remarks, ". . . in particular all local anesthetic drugs, such as benzocaine (ethyl-aminobenzoate), while they may temporarily relieve pruritus by their effect on the terminal nerve endings, are relatively frequent sensitizers; and can often produce or aggravate a dermatitis."

BUTACAINE SULFATE (BUTYN®)

In three of the eight cases (table 8) of epidermal hypersensitivity to butacaine sulfate (butyn®) listed collateral sensitivity was looked for and found.

OTHER LOCAL ANESTHETICS

Nine cases (table 9) of hypersensitivity to other local anesthetics are reported. Novol is a proprietary preparation containing chiefly procaine, epinephrine and chlorobutanol (chloretone®). Cases of sensitivity to this agent were not included under procaine because in one the patch test to procaine was negative[22] and in the other slightly positive,[23] while the tests to novol were strongly positive in both. Tests for epinephrine and chlorobutanol were not reported individually, but appear to be possibilities. The lack of case reports of hypersensitivity to piperocaine (metycaine®) hydrochloride might be explained by the unusual difference in its structure from most other local anesthetics, but this explanation is certainly not applicable to larocaine.® Apothesine,® like larocaine® a procaine-type compound, has apparently fallen into disuse. Sedothyol (a butyl aminobenzoate preparation) is closely allied to ethyl aminobenzoate (benzocaine): both are well known offenders. Nestosyl is a preparation containing ethyl and butyl aminobenzoates.

DERMATITIS AMONG DENTISTS

In November 1947, the Council on Dental Therapeutics of the American Dental Association, as a part of its program of therapeutic investigation, began to compile a list of dentists who were sensitive to procaine, butethamine (monocaine®) butacaine and other drugs used in their practice with a view to possible prevention and rational treatment of occupational dermatitis among dentists.[24] By Oct. 1, 1948 the council had obtained the names of 742 dentists reported to be hypersensitive to one or more items used in their practice. The results of the survey suggest that perhaps as many as 700 more dentists who have symptoms have not reported to the council.

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[8] Schwarzschild, L.: Sensitization Experiments with Orthoform Series, Arch. f. Dermat. & Syph. **156:** 432, 1928.

[9] Sulzberger, M. B., and Wise, F.: Drug Eruptions: II. Dermatitis Eczematosa Due to Drugs, Arch. Dermat. & Syph. **28:** 461 (Oct.) 1933.

[10] Jackson, N. R.: Dermatitis from Picric Acid Solution and Butesin Picrate Ointment, Arch. Dermat. & Syph. **21:** 40 (Jan.) 1930.

[11] Oliver, E. A., in discussion on Templeton, H. J.: Epidermal and Dermal Sensitization (Coexisting in Same Individual), J. A. M. A. **127:** 908 (April) 1945.

[12] Gans, H.: Pontocaine: Eczema Developing After Anesthesia, Hals-, Nasen- u. Ohrenarzt **27:** 152, 1936.

[13] Gebb, H.: Pontocaine in Ophthalmology, Ztschr. f. Augenh. **79:** 467, 1933.

[14] Mannheimer, M.: Hypersusceptibility to Pontocaine Used in Ophthalmic Surgery, Deutsche med. Wchnschr. **59:** 85, 1933.

[15] Marx, E.: Ophthalmic Reactions to Pontocaine, Klin. Monatsbl. f. Augenh. **89:** 209, 1932.

[16] Rauh, W.: Experience with Pontocaine, Ztschr. f. Augenh. **82:** 134, 1933.

[17] Reitsch, W.: Pontocaine as Cause of Eczema, Klin. Monatsbl. f. Augenh. **97:** 773, 1936.

[18] Sander-Larsen, S.: Pontocaine Eczema, Acta ophth. **16:** 647, 1938.

[19] Cameron, O. J.: Skin Eruptions Due to Nupercaine and Pontocaine, Nebraska M. J. **22:** 229, 1937. Choquard, L.: Report of Unexpected Production of General Anesthesia by Local Use, Schweiz. med. Wchnschr. **61:** 666, 1931.

[20] Paillard, R., and Wyss-Chodat, F.: Cutaneous Hypersensitivity to Local Anesthetics of the Aniline Group, Schweiz. med. Wchnschr. **72:** 442, 1942.

[21] Sulzberger, M. B.: Dermatologic Allergy: An Introduction in the Form of a Series of Lectures, Springfield, Ill., Charles C Thomas, Publisher, 1940, p. 469.

[22] Kesten, B., and Laszlo, E.: Dermatitis Due to Sensitization to Contact Substances: Dermatitis Venenata, Occupational Dermatitis, Arch. Dermat. & Syph. **23:** 221 (Feb.) 1931.

[23] Klauder, J. V.: Novocaine Dermatitis, Dental Cosmos **64:** 305, 1922.

About 400 of the dentists responding appeared to have a dermatitis due to local anesthetics.[25] A further study of some members of this group has been reported by Laden and Wallace.[26] In these dentists the hypersensitizing factor was restricted to substances of the procaine group and was not present in local anesthetics which differed markedly from procaine in their nucleus or side chain. It was found that relief depended upon avoiding these procaine preparations and adopting substitutes in other groups. Further investigation of group specificity is needed to explain the relationships of these various agents.

In table 10 are listed the 39 cases of dermatitis from local anesthetics among dentists and physicians, indicating the occupational hazard in these groups. This table emphasizes the figures obtained in the survey among dentists of the American Dental Association referred to above.

COMMENT

Howell [5] has suggested a presentday suitable criterion for cases of contact dermatitis: (1) known exposure to substance; (2) eczematous reaction to patch test in harmless concentration, and (3) elimination of substance resulting in clearing of the skin. When the reaction of epidermal hypersensitivity appears it is typically that of dermatitis venenata, but in long-standing dermatitis, such as continued occupational use of procaine, the reaction presented may be dry, fissured, scaly, and keratotic.[27] The reaction of epidermal hypersensitivity to local anesthetics topically used is usually characterized by a period of delay or development of the reaction of sixteen to forty-eight hours,[9] but it may not appear for as much as 45 days [28] after a single patch test. The dermatitis may progress for as much as 20 days [9] after it makes its appearance. Schwarzschild,[8] using the local anesthetic orthoform, demonstrated that in over half of his human experimental subjects epidermal hypersensitivity could be produced by repeated epidermal applications. Even corneal ulcers have been reported to follow the use of drops containing procaine.[29]

The problem of localized epidermal hypersensitivity appears to have progressed to this point: Patients with positive patch tests have been shown only in specific instances to have negative mucous membrane tests,[30] negative intradermal and scratch tests,[30a] negative Prausnitz-Kustner reactions,[31] negative abdominal patch tests with positive forearm patch tests,[30b, c] and an increase in reaction at the site of a previous patch test.[30b, c] Schwarzschild [8] states that in three fourths of his human experimentally sensitized patients a sensitivity of the entire skin was produced from one circumscribed area. McAlpine [27c] presented four cases with a positive patch test in three of which there was a negative conjunctival reaction and in one a positive conjunctival reaction. Berens [27c] had three patients with a positive conjunctival reaction, of which two had a positive skin test and one a negative skin patch test. This problem resolves itself perhaps into an integration of the factors of (1) time,[9] period of refractoriness to sensitization, and period of incubation to sensitization; (2) route of exposure to the skin, local or hematogenous at one time, and (3) amount of substance absorbed and distributed, or held locally, or desquamated with the reaction. Knowledge of these items and further data on group sensitivity to local anesthetics would seem to require further experimental elucidation. Today one might say that the presence of an epidermal sensitivity in a given area may mean sensitivity in all cutaneous areas in a given patient and that a single individual may have a sensitivity to other members of a chemically related group of substances,[28] and for the practical practice of medicine these thoughts may best serve our purposes for the moment.

The frequency of occurrence of dermatitis associated with the local application of anesthetic agents emphasizes the very wide use of these preparations for the relief of cutaneous symptoms. A casual search reveals the fact that many firms have produced preparations for relief of these symptoms in much the same way as the antihistaminic preparations are being brought out today. In table 11 are indicated some of these many preparations containing local anesthetics for topical application. It would seem advisable that some sort of warning concerning possible sensitization should accompany such preparations when prescribed for local use.

SUMMARY

The paucity of case reports of the frequent sensitizers among the local anesthetic drugs is surprising. Such cases occur frequently. One hundred and seven cases of epidermal hypersensitivity to local anesthetics are reviewed. Seventy-eight cases, or 73 per cent, were confirmed by positive patch test. In decreasing order of case report frequency they are: procaine, orthoform, butamben (butesin®) picrate, tetracaine (pontocaine), dibucaine (nupercaine®), ethyl aminobenzoate (benzocaine), butacaine (butyn®), apothesine,® larocaine® and piperocaine (metycaine®). Collateral sensitivity among these similar organic compounds is not infrequent and may be wide. A recent survey of dentists indicates a rather high proportion of dentists who have become sensitized to local anesthetics. These agents are an occupational hazard. In considering the problem of possible localized epidermal hypersensitivity it seems sound for practical purposes to assume that such a localized sensitivity may mean generalized sensitivity in any given patient. It would seem unwise to dispense or prescribe a local anesthetic preparation for topical use without being alert for the occurrence of epidermal hypersensitivity at any time. Furthermore, a word of caution about the possibility of such sensitization should be issued in all advertising material which concerns these agents.

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[24] Council to Investigate Occupational Dermatitis, J. Am. Dent. A. 35: 677, 1947.

[25] Council Reports Progress in Study of Occupational Dermatitis Among Dentists, J. Am. Dent. A. 38: 148, 1949.

[26] Laden, E. L., and Wallace, D. A.: Contact Dermatitis Due to Procaine: A Common Occupational Disease of Dentists, J. Invest. Dermat. 12: 299, 1949.

[27] (*a*) Gaskill, H. K.: Procaine Dermatitis Among Dentists, Arch. Dermat. & Syph. 6: 576 (Nov.) 1922. (*b*) Highman, W. J.: Procaine Dermatitis, abstracted, ibid. 4: 262 (Aug.) 1921. (*c*) McAlpine, P. T., and Berens, C.: Allergic Dermatitis and Blepharo-Conjunctivitis Caused by Pontocaine, Am. J. Ophth. 25: 206, 1942. (*d*) Stsherbakoff, I. M.: Procaine Hydrochloride Dermatitis in Dentists, Sovet. vestnik venerol i dermat. 9: 257, 1931.

[28] Kulchar, G. V.: Late, or Delayed, Reactions to Patch Tests, Arch. Dermat. & Syph. 43: 636 (April) 1941.

[29] Galewsky, D.: Dermatitis from Novocaine Eye Wash, Dermat. Wchnschr. 85: 1195, 1927.

[30] (*a*) Goodman, M. H.: Cutaneous Hypersensitivity to the Procaine Anesthetics, J. Invest. Dermat. 2: 53, 1939. (*b*) Lane, C. G., in discussion on James, B. M.: Procaine Dermatitis: Report of Case and Attempt to Determine Chemical Groups Responsible for Hypersensitiveness, J. A. M. A. 97: 440 (Aug. 15) 1931. (*c*) Lane, C. G., in discussion on Rothman, Orland and Flesch.[31]

[31] (*a*) Rothman, S.; Orland, F. J., and Flesch, P.: Group Specificity of Epidermal Allergy to Procaine in Man, J. Invest. Dermat. 6: 191, 1945. (*b*) Strauss, M. J.: Group Sensitivity to Local Anesthetics, J. Invest. Dermat. 8: 403 (June) 1947.

Addendum: Since this report was finished two reports of dermatitis due to the procaine fraction of procaine penicillin have been noted: (Peck, S. M., and Feldman, F. F.: Contact Allergic Dermatitis Due to the Procaine Fraction of Procaine Penicillin, *J. Invest. Dermat.* **13:** 109 [Sept.] 1949; Hitschmann, O. B., Leider, M., and Baer, R. L.: Dermatitis Due to the Procaine Fraction of Procaine Penicillin, *ibid.* **15:**165 [Sept.] 1950).

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ABSTRACT OF DISCUSSION

Dr. Earl D. Osborne, Buffalo, N. Y.: Dr. Luikart's paper is timely in view of the rapid increase in the use of local anesthetics incorporated in proprietary preparations. I made an analysis of 200 cases of dermatitis venenata, to try to obtain an idea of the incidence of reaction to local anesthetics as well as to other medication. These figures are rough because, in many cases, it is impossible to pin down the cause to a single specific agent. About 40 to 50% of the cases of dermatitis venenata that come to the dermatologist's office are due to medication of one type or another; of this 40 to 50%, between 10 and 20% are due to local anesthetics. An interesting point is the interrelation of reaction between related chemical compounds and their specificity. While an individual who reacts to a chemical compound of one type is likely to react to another related chemical compound, that is not always true. In testing patients with chrome compounds, for instance, we have noted many times subjects who would react positively to patassium bichromate and negatively to chromic acid, and so on. There are many other similar examples. A person who has dermatitis due to one chemical compound, when exposed to these local anesthetics or poison ivy or some other plant, is four to five times as liable to development of another dermatitis from additional sensitization to other chemical compounds as is a person who has never had a dermatitis venenata. If one tests any series of patients presenting dermatitis venenata from any chemical compound, in addition to the positive test to the specific substance, if he does enough tests he will invariably find two or three other positive reactions to completely unrelated chemical compounds; hence it is impossible to make a hard and fast rule. An interesting phase of this problem has to do with recognition of difficult cases of dermatitis scattered helter-skelter on the body. Local anesthetics are chiefly used in local areas such as the anal area, for pruritus ani, the vulvar area, for pruritus vulvae, and occasionally a localized area such as for insect bites, and often there will be an exacerbation of a dermatitis in that area without causing the patient too much concern, and at the same time a dermatitis will appear on the eyelids from contact with the fingers, or elsewhere on the body, such as on the nail in nail lacquer dermatitis, the eyelids, the cheeks and neck, and other areas. In a series of cases we found quite a number of examples of the presenting symptom being a nondescript dermatitis that had eluded detection, at least as to the cause, for many weeks or months.

Dr. Donald M. Pillsbury, Philadelphia: I should like to discuss this problem from another angle—whether or not these preparations are effective in the relief of itching. A fundamental error has been made in assuming that, because a preparation placed on the conjunctiva produces loss of sensitivity or because it produces anesthesia on injection, it will relieve itching on application to the skin. This whole problem has been under study by Dr. W. B. Shelley and others in our department for three years. Through the normal, unbroken skin it is impossible to get any anesthetic down to the nerve endings in a concentration sufficient to produce any relief of pain or itching. Shelley and others collected reports on some 57 different types of preparations that have been suggested for the relief of pruritus. In only two of those had the conditions of study been controlled at all. Those were both in the use of dibucaine. In one study it was thought that dibucaine was good, and in the other there was no demonstrable effect at all. If we can get a preparation which will relieve itching, or if there is even reasonable evidence that it will, one can possibly assume a small calculated risk of sensitization. But when we have this whole group of preparations in which there is undoubted evidence that they do produce sensitivity, that they do produce disability, and for which the evidence that they relieve itching is extremely slim, our position in the matter is poor. I think, therefore, that this report of Drs. Lane and Luikart is extremely timely.

Dr. Ralph Luikart II, Santa Barbara, Calif.: I am grateful to Drs. Osborne and Pillsbury for their reinforcement of the principle that we are trying to disseminate. Dr. Osborne wisely brought out the high percentage of incidence of these hypersensitivities. Collateral hypersensitivity to related compounds, as judged from collateral patch testing with similar organic chemicals in patients who are sensitive to local anesthetics, has indicated that the polysensitivity of a given person may be broad, particularly at the time of an acute episode. Often, after the acute episode is over, patch testing will reveal that the hypersensitivity appears then to be more chemically specific. I should like to add to one of Dr. Pillsbury's statements. Not only are local anesthetics dangerous, but frequently the prescribing of a local anesthetic in an ointment base (as is usually done) exaggerates the patient's pruritus. Do we occasionally overlook the fact that these ointment bases are physically occlusive in nature and the occlusion of the skin retains its local warmth, thereby increasing the sensation of pruritus? We should conclude, then, that not only may the topical application of local anesthetics be dangerous in many instances but also in individual patients their use in ointment form may increase pruritus.

Clinical Observations and Scientific Analysis.—Our knowledge of the nervous system has advanced enormously in the last half century, and the picture of its activity has changed dramatically from that of a static telephone system to that of a far more complex, flexible, mobile, dynamic instrument. This change has come about in good part because neurophysiologists have had to consider new phenomena, discovered in many cases in the clinic and by clinical workers, which demanded scientific analysis and interpretation. Such phenomena force the experimentalist and the scientific theoretician into broader and more useful and certainly truer views of the real mechanisms of the nervous system. The clinician who observes carefully and allows himself to think about the meaning of his observations will do a great service to medical science by supplying the experimentalist with valuable stimuli. This is nowhere better illustrated than by the clinical contributions in the field of pain.—R. W. Gerard, M.D., The Physiology of Pain: Abnormal Neuron States in Causalgia and Related Phenomena, *Anesthesiology,* January 1951.

THE SEXUAL PSYCHOPATH

Ben Karpman, M.D., Washington, D. C.

The general public has but a vague idea of what a sexual criminal is. It calls him a sex maniac, thinks he is some terrible monster, and is afraid of him. Questioned directly, women mention rape and perhaps exhibitionism or assaults, especially on children. The public is likely to regard simple molestation as of such little moment that in most cases it is not even reported. It accepts prostitution as an inescapable evil, shrugs in disgust at cases of homosexuality or perversion, and expresses profound disgust on learning of masturbation in public. The physician's attitude is hardly more enlightened. He treats the pervert (paraphiliac) with contempt and speaks of him as a degenerate, though the term carries a connotation of moral opprobrium that has no place in medical work. (The term paraphiliac is scientifically more correct and is more objective as well.)

The public has little idea of the meaning or frequency of sexual crimes or of their relation to the problem of crime in general. As a rule, people are indifferent to the problem. However, let some particularly revolting sexual crime take place, as rape followed by great abuse or murder, and the whole community becomes aroused, newspapers are filled with gruesome details, and the news of a sex crime wave spreads. A few sex offenders conveniently appear and are given heavier than usual sentences; the police redouble their energy in apprehending sexual offenders; the public spirit is appeased for a while, and the "wave" dies out. Actually it is doubtful whether there has ever been a real sex crime wave except, perhaps, during and shortly after a war, which generally favors a certain degree of moral looseness. It is also doubtful that the claim that sex crimes are on the increase can be substantiated by valid statistical reports. They are increased solely because of an increase in population but are not proportionately more numerous.

Laws are not clear as to the specific definition of sexual crimes. Sexual behavior that may be regarded as a felony and a crime in one jurisdiction is not considered even a misdemeanor in another. Furthermore, crimes obviously of a sexual nature and otherwise conforming to the original definition of sexual psychopathy (as, for instance, rape) are universally viewed by law as assaults, as offenses against persons. A person may commit incest in the privacy of his home and not fall within the definition of a sexual psychopath, yet be regarded and punished as such should the situation come to public attention.

With the exception of such clear-cut offenses as exhibitionism or assaults on minors, laws relating to punishment for sex crimes are far from specific. Technically, prostitution is a sex crime but is rarely punished unless something brings it to the attention of the public. Rape, clearly a sexual crime, is regarded by law as an assault on a person. One person convicted of rape may receive the death penalty, while in another jurisdiction and in circumstances that appear identical the charge may be less and the penalty not as severe. People have been arrested for carrying in their pockets pictures of nude men and women that differ in no wise from pictures published in nudist magazines, many of which are allowed to go through postal channels.

THE NOSOLOGICAL POSITION OF SEXUAL PSYCHOPATHY WITHIN THE FRAMEWORK OF NEUROSIS

The terms "sexual psychopath" and "sexual psychopathy" have no legitimate place in psychiatric nosology or dynamic classification. They are popularly and legally used to designate a certain type of behavior that, on the one hand, is characterized by socially prohibited or unacceptable sexual aggressiveness, and, on the other hand, by lack of regard for the feelings of the partner who is forced against his or her will to participate. Whether it is comparatively mild as in the case of simple assault, or whether it is severely aggravated assault, it is, as a rule, an expression of an uncontrollable urge, committed without logic or rationale, under the influence of a strong, overpowering drive. The act apparently gives no emotional satisfaction but only relief from unbearable tension. Such behavior represents practices that are not considered normal by the particular social order in which the person lives. As such, it clearly comes within the purview of the law, for by violating the morals or sexual independence of others it violates one of the basic principles of individual freedom.

The law regards these reactions as willfully perpetrated offenses, the results of malicious intent and premeditation. Psychiatry (more specifically, dynamic psychiatry), because of the opportunity it has had to study the deeper motivations behind human behavior, takes a broader view. It recognizes these reactions as part of a large group of behavior disorders commonly classified under the heading of perversions, or paraphilias (the paraphiliac neuroses). These are reactions that are not desirable biologically or culturally and are therefore prohibited. Homosexuality and related behavior are included here because biologically no issue can result from a homosexual union. The cultural paraphilias are those such as incest, pedophilia, and rape, which biologically can result in issue, though such issue is prohibited by our culture.

The definition of sexual psychopathy encompasses such behavior as exhibitionism, peeping, transvestism, masturbation, obscenity, and the like if committed in public but excludes the same reactions if committed privately. Thus, if one person forces another person under threat into homosexual activity, it is regarded legally as a sexual offense. However, if two persons by mutual consent engage in the privacy of their homes in homosexual relations, such behavior is not commonly regarded as sexually psychopathic. The laws of some states, however, classify such behavior as criminal and

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punishable by statute. Some psychiatrists, too, appear to go beyond the ordinary definition and include any aberrant sexual activity as psychopathic. Thus, it has happened that a soldier or a sailor who in the course of a routine psychiatric examination admitted homosexual activities, though these were never committed in public nor came to public attention, was nonetheless given the diagnosis of "sexual psychopathy" and an undesirable discharge.

Meaning of the Paraphiliac Neuroses.—Dynamic psychiatry sees in paraphilias profound disturbances in the sex life of the person and patterns of sexual behavior not directed ultimately toward procreation, the goal of all normal sex life. The paraphiliac has not matured sexually, having failed to integrate his sexual needs and activities in such a way as to accord with socially accepted modes of sexual expression. He represents a kind of sex life that at an early period of development lost its normal goal, or rather, never having reached it, detoured into aberrant channels leading to an abortive aim-inhibited sexual activity. The latter, it often turns out, is but a substitute and a symbol for an originally prohibited sexual goal (e.g., incest). Nonetheless, the behavior is most persistent because it is so close to the instinctive. For that reason also it has lost nothing of its original strength; indeed, it is stronger than the normal sexual instinct, for less repression has been interposed in its way of expression. People suffering from paraphiliac neuroses are driven compulsively to seek gratification of an apparently insatiable urge.

Often patients come to psychiatrists for treatment of the general neurotic manifestations, such as anxiety or depression, suicidal trends, or psychosomatic disorders. The anamnesis, however, reveals overt homosexual behavior. The paraphiliac neuroses, though clinically seeming to stand apart, are in reality, in terms of psychogenesis, closely related to hysterical and other neuroses. They differ in that certain sexual trends, which in other neuroses find expression only in dreams and fantasies or perhaps some vicarious and cryptic sexual behavior, have become established in the paraphilias as fixed modes of behavior.

The majority of psychiatrists today speak of these reactions as psychopathic. One of the chief reasons that psychiatrists as a group have failed to recognize the basically psychoneurotic character of the paraphilias is that in these cases the practice of the perversion appears to be the most conspicuous characteristic and activity, as if the practice had absorbed the underlying neurotic symptomatology. Neuroses in general have a certain fluidity and mobility about them, the picture changing kaleidoscopically; the paraphilias, in contrast, impress one with a rigidity, an immutability, as if the reaction has become a permanent, fixed, and unchangeable pattern. A fuller study, however, reveals that behind the overt paraphilia there is a full-fledged neurosis. Here is a person who may be regarded as polymorphously perverse. There is hardly a paraphilia that he has missed. But the observer also finds in him a history of states of depression, inferiority feelings, hypochondriasis, hysterical convulsions, and the like. Another person is arrested on a charge of exhibitionism, but further study reveals a history of temper tantrums, inferiority feelings with strong compensatory drives, distinct sadomasochistic trends, and suicidal tendencies. An absolute homosexual, whose most conspicuous behavior is homosexuality, also suffers from hypochondriasis, syphilophobia, anxiety states, suicidal trends, somnambulism, inferiority feelings, and the like.

Sexual Psychopathy in Relation to Paraphilias.—While many of these reactions remain generally within the control of the individual, a certain group becomes detached from the general stream and assumes an antisocial character. That is to say, the sexual offenses are but an offshoot of the larger group, the paraphiliac neuroses. For the most part, the difference between the paraphiliac neuroses that are so well controlled by the individual as to keep him out of reach of the law and those of the so-called sexual psychopath, whose behavior is regarded as antisocial and criminal, is a difference only in degree rather than in kind. Exceptionally, it may be a difference in kind as well, as in the case of rape where the factor of violence is a necessary part of the picture; or in cases of transvestism where a person craves to be admired as a member of the opposite sex, or in exhibitionism where the sadistic element, the need that the other person be shocked and the consciousness that he is shocked, enters as a strong factor.

Yet similar reactions in an attenuated form occur privately among many people, both normal and neurotic. Some men can be aroused to greater potency if they violate the decency of a woman and shock her morals, even if she is otherwise a willing partner. Likewise, many men in the privacy of their homes will strut before a woman, hoping and wishing to be admired, or will expect the woman to behave in like manner; these are reactions of exhibitionism and voyeurism, respectively.

Two striking differences, however, must be noted between the ordinary paraphiliac neuroses and those that become antisocial. In the former there is an emotional relationship between the people concerned, whereas in cases of sexual psychopathy such a relationship seems to be lacking. The relationship is more symbolic and less direct and personal. Furthermore, in the instance of the sexual psychopath guilt with reference to the commission of the offense as well as to the victim, or for that matter even to his fellow men, seems to be entirely lacking.

The sexual psychopath and the noncriminal paraphiliac stem from the same sources and develop along the same path, but somewhere in the course of their development their paths diverge. One remains within the confines of nonlegal violations of social conventions; the behavior of the other asumes a legally prohibited form. The divergence in the course of development is effected early in life, which explains why on the surface the two reactions look quite dissimilar. The social offense with which the sexual psychopath may be charged, be it minimal or highly aggravated, is at the most a compromise with or a symbol of a greater offense that has been completely repressed because it is so strongly prohibited socially—namely, incest and homosexuality. The sexual offense, therefore, extreme as it may appear to be, is committed in lieu of another greater crime.

In turn, the paraphilias differ from ordinary neuroses, forming a group of their own—namely, the paraphiliac neurosis, which is as clear and distinct as neurosis (psychoneurosis) in general. Again, these two come from much the same sources, but, after developing in like manner for a while, their paths begin to diverge, one developing into psychoneurosis, the other into paraphiliac neurosis. Their divergence of paths is due to the fact that while one type of neurotic child, confronted with an emotional sexual problem, represses the prohibited sexual drive and converts it into psychosomatic or other emotional socially innocuous behavior such as anxiety or depression, the other fails to repress it and thinly disguised symbolic behavior results. In other words, while the neurotic converts his problem into psychosomatic and other types of socially acceptable though individually undesirable behavior, the paraphiliac neurotic converts his basic sexual problems into another form of behavior, which is socially nonpermissible but less so than that of the sexual psychopath.

It need not be supposed that all reactions and behavior of the neurotic, all his doings and all his thinking, are directly traceable to or can be accounted for by his neurosis. There are many areas in his life that are entirely comparable to those of the normal person. Though there are a few qualitative differences, for the most part his departures from the normal are on the quantitative side. Where the normal person confronted with a threatening situation may show some apprehension, the neurotic will over-react to it and show, instead, exaggerated anxiety. In a situation where a normal man may feel some resentment and express it by sarcasm, cynicism, scorn, or even biting wit, the neurotic will react with great anger, rage, or some antisocial, hostile act. Where a normal person confronted with the loss of a loved person will react with a depression that is relatively transitory, in the neurotic such mourning may develop into a long-lasting melancholia that far passes the bounds of the normal and may even lead to his death. Thus the neurotic is close to the normal; in a sense, it might be said there is some neurosis in everyone, and it is often but a question of degree of environmental strain as to how soon a person breaks down. Equally, there is something of the paraphiliac in every one of us and also something of the sexual psychopath.

The above consideration may seem strained and far-fetched, but there is a great deal of clinical truth in it, as is seen in the all-too-frequent instances where an apparently normal, previously well-adjusted person breaks down, and in whom a severe neurosis, a severe paraphilia, and perhaps acute sexual psychopathic behavior develop. Though most human beings react with disgust, even horror, rather than indifference to abnormal sex behavior, it is well to take cognizance of the fact that potentialities for it lie dormant in everyone. This consideration alone should make us adopt a more objective as well as a more tolerant attitude. Sexual psychopaths are, of course, a social menace, but they are not conscious agents deliberately and viciously perpetrating these acts; rather, they are victims of a disease from which many of them suffer more than their victims, often ending in the suicide of the sufferer.

Relation of Specific Paraphilias to Each Other.—Though when the structure of the paraphiliac neuroses is studied they are found to be closely interrelated psychogenically, by and large the paraphiliac indulgences, so far as society is concerned, are fairly pure culture products. Exhibitionists are rarely transvestists, though a minor exhibitionistic component may be found in transvestism. Likewise, the person given to obscenity will show in only a very remote sense such obvious sadistic trends as would bring him to the attention of the police, though a sadistic component may be discovered in the very fact or act of obscenity. A person given to compulsive raping is not likely to be exhibitionistic. Yet some overlapping does occur. Understandably, exhibitionism and voyeurism sometimes go together; they are mirror complements of each other.

Paraphilias and Psychopathy.—It can easily be seen how the term "psychopathy" came to be applied to this type of sexual offender. In both the sexual and the predatory psychopath there appears to be a lack of moral responsibility, selfishness, an inability to weigh and foresee the inevitable consequence of the particular behavior, difficulties in interpersonal relationships, and an uncontrolled aggressiveness. Yet on closer analysis the relationship between sexual psychopathy and predatory psychopathy appears to be rather remote, for the two proceed from somewhat different sources. It is extremely rare for a person charged with compulsive rape or fetishism to be found guilty of predatory exploits also. Occasionally this may happen, as when fetishism, for instance, goes with burglary; then it is discovered that the burglary was committed solely for the purpose of securing objects of fetishistic interest, e.g., female garments. Cases occur, however, where the two types of reactions are quite independent of each other, even if found in the same person, as in the instance of the exhibitionist who was also guilty of predatory exploits although the two reactions were not at all related, stemming from different sources.

To doubt the correctness of labeling these cases psychopathic is more than merely a question of semantics or conventional clinical diagnosis. These reactions, while admittedly antisocial, are basically neuroses of a particular, highly specific type. Nor can such behavior be regarded as an entity or disease in itself but only as a symptom-complex or syndrome; only as part of a complex, ramified neurosis, the paraphiliac neurosis. In its basic etiology, development, and formation, it differs in no wise from other psychogenic reactions, be they expressed as anxiety, compulsion, psychogenic asthma, or other neurotic symptoms; except that somewhere in its development, through a concatenation of specific situations, the neurotic conflict took a different direction.

CHIEF CHARACTERISTICS OF SEXUAL PSYCHOPATHY

Irresistible Character of Paraphiliac Offenses.—There is little doubt that the reactions that are attributed to sexual psychopaths are beyond the sphere of conscious or voluntary control and appear as irresistible impulses, which explains why in practice these cases do not profit by punishment; uncontrollable instinct is beyond any punishment. As neuroses, they have their specific causations, which may be of long-past origin that only at the moment has manifested itself by the particular sexual violation. Dynamic psychiatry views these reactions as neuroses, which in the fullest sense they are. It ascribes less importance to constitutional or immediate personal factors than it does to functional, deep-seated psychogenic emotional factors. For this reason, it has long attempted to cure sexual psychopaths in the same manner as it treats other neurotics. Amazingly enough, many such patients have responded to psychotherapy and actually improved and in some instances were entirely cured, when the specific etiology was uncovered and the person was given the opportunity to discharge the unhealthy and repressed emotions.

It has long been recognized that man's sex life differs from that of animals in being continuous rather than seasonal. Neurotics as a group have a stronger sex drive than the average normal person, and its strength may be expressed as satyriasis or excessive promiscuity; on the other hand, it may be diminished, because of many repressions, to the point of asceticism. The noncriminal paraphiliac appears to have a stronger sexual drive than the neurotic; the condition has become established and fixed; repressions do not operate here so efficiently as in neuroses. That this urge is never quite satisfied is apparent in the cases of many homosexuals who, after apparently satisfactory homosexual relations, masturbate, a reaction that does not obtain in normal persons. In the sexual psychopath the urge is much more compelling, so compelling indeed as to assume the character of a compulsive, insatiable, unremitting, unbridled (one might say inexorable), unrelenting drive that gives the man no rest or peace. It is not that the man, while he lives, also seeks sexual gratification, as is the case with the average person, but rather that he continuously has to have his particular sexual outlet in order to live at all. It is as if the man had consecrated his life to sex, which has become his most consuming interest; whatever other kind of life he leads appears to be purely incidental. There are exhibitionists who have exposed themselves several hundred times a day; I have recorded one case in which a man stood exposed in his window all day for all passersby to see. One voyeur would start each night at a particular apartment house and, armed with magnifying field glasses, look across at another apartment house to see what he could see, proceeding from one fire escape to another until he exhausted all the possibilities of that building; the next night it would be another apartment house, and so on. These people are all seeking an orgasm that must be attained at any price. It is well known that many sexual assaults, acts of exhibitionism, voyeurism, transvestism, sadomasochism, fetishism, and the like are preceded, accompanied, or followed by masturbation. In most if not all of them the individual's sexual drive has become a guiding force in his life; many order and organize their lives and living entirely within the framework of their particular drive.

Sexual Psychopathy and Nonsexual Crimes.—It is little appreciated that crimes with a sexual motivation are often hidden behind assaults that, on the surface at least, appear to be nonsexual. Aggravated assault and battery, assault with dangerous weapons, and murder often have a sexual motivation. This is seen in cases of rape followed by murder. Many criminals who violate the law in other than sexual ways fall essentially within the category of sexual offenders if basic motivation rather than superficial behavior is considered. In law, they are usually charged with felonious assault, mayhem, or murder. Here, as in the overt cases, the paramount goal is the securing of an orgasm. A young boy stabs a totally strange girl with a knife. Analysis reveals that he has a consummate hatred of women that must discharge itself in an act of aggression and hostility. His mind is continuously preoccupied with fantasies of the most cruel, sadistic torture. A man slashes the throats of young girls. On arrest, it is found that his underwear is bespattered with semen. To this group belong also the men who cut off women's hair, the acid-throwers, the fur coat and dress slashers, the Jack the Rippers, and the like. There are many pyromaniacs whose desire for an orgasm constitutes the sole reason for setting fires that have cost the lives of many people. This is also true of many kleptomaniacs. These are not so much sex crimes as crimes motivated by sex. But who can draw the thin and vanishing line that separates the two?

Distribution.—Sexual perversions (paraphilias) and sexual offenses draw no line in matters of race, class, or social position. There are homosexuals in the upper, middle, and lower classes. There are exhibitionists among white and among colored people. Such offenses occur among the highly intelligent as well as among the illiterate and the ignorant. Rousseau was an exhibitionist; Chevalier d'Eon was a transvestist; many gifted artists have been homosexuals. No age is immune, though each may have its particular type. The young adult may be exhibitionistic, while the man approaching senility may assault children, because he himself has come to feel much like a child (senile pedophilia).

Women are much less involved than men, though cases of women exhibitionists have been recorded as well as a few cases of female transvestists. Modern society permits larger outlet for women in some instances, as in transvestism. If a man dresses up as a woman it is an offense, but a woman may wear severely tailored clothes, ties, and short haircuts without exciting comment.

Relation to Normal Sex Life.—The sexual offense is not a substitute for normal sexual intercourse, and cases are known where neither excessive intercourse nor abstinence stopped it. It is a form of sexual activity all its own, satisfying some very specific needs of the individual that normal sexual activity cannot give. Contrary to popular misconception, people who read salacious literature are less likely to become sexual offenders than those who do not, for the reason that such reading often neutralizes what aberrant sexual interests they may have.

ETIOLOGY

Sexual offenses are no more hereditary than are neuroses in general. They are not due to bad sexual upbringing or to sexual ignorance. The development of perversions in general and sexual offenses in particular follows its own psychological laws, which are but little influenced by external situations. As an alcoholic man may come from a family of teetotalers, and a homosexual from a family of healthy sexual habits, so may a sexual offender come from a family with an unblemished moral background.

The fact is that as yet very little is known of the subject. The anatomy of the subject is hardly known; there is no specific statement of the types and conditions. Individual case reports are buried in the little-read pages of psychiatric magazines that rarely reach the attention of the general medical practitioner. No one has attempted to organize this diffuse material into something like a unit. As little is known of the anatomy, still less is known of its physiology—the physiogenesis, psychogenesis, and psychodynamics. General knowledge of the subject is in about the same state as general pathology was before Rokitansky and Virchow. Yet it is of vast importance, for its ramifications reach the most important aspects of our daily life. Sexual crimes bear a direct relationship to sexual psychopathology in general, and this to the psychopathology of neuroses.

A certain number of sexual crimes are committed by individuals suffering from brain diseases such as encephalitis lethargica, which argues strongly for the need of thorough physical examinations of all sexual (and other) offenders. Even these respond favorably to psychotherapeutic treatment. But beyond this, abnormal sex behavior, be it in the adult or the child, derives from the unwholesome family and social atmosphere in which the child develops. The fault lies with the parents, who, themselves products of unhealthy repression and much involved in sexual problems, do not know and cannot set themselves to be frank and open with the child whose naive and artless curiosity should have been handled in an equally simple way. Because of the many evasions, rationalizations, and sheer prohibitions, the child is led into aberrant channels that, not being corrected, become magnified and distorted. It is suggestive that sexual psychopaths do not come from families with psychopathic sexuality.

Most parents believe that not only are children ignorant of sex—which is not true of most children—but that they must remain ignorant, ignorance being equated with innocence. But where ignorance may be polluted knowledge, innocence may be good knowledge. Curiosity should be treated as a natural thing, not as a crime to be avoided or punished.

A good deal of the fault lies with the family physician, who sees many of these cases in the early stages of development. Even in these days of supposed enlightenment and sophistication there still seem to be many physicians who earnestly tell growing boys and girls that masturbation leads to insanity, body deterioration, and ultimate death. Harmless play such as "papa and mamma," "doctor and nurse," or "you show me what you have and I'll show you what I have," etc., is severely punished if discovered, which only creates an air of mystery and, therefore, attraction about it. At this stage many of the sexual problems are still latent and could be corrected with greater ease than years later. Instead, unreasonable prohibitions and proscriptions are imposed, with the result that they are driven underground, there to become withered and distorted.

TREATMENT

Legal Approach.—The law fails to prevent, correct, or deter sexual criminals from their activities; the problem must therefore be regarded as basically extralegal. There is no more need to have laws against perversive activities than there is to have laws against any illness, for such activities represent illnesses in the fullest sense of the word. This, however, requires a large amount of missionary work not only among physicians in general but even among psychiatrists. A great many psychiatrists still group paraphiliacs among those who are mentally abnormal though not insane, an invidious distinction harking back to the psychiatry of 50 years ago, which limited insanity only to psychoses. Dynamic psychiatry has gone far beyond that, becoming more inclusive and comprehensive, taking into its province all those reactions that, having pathological motivations behind them, lead to abnormal social behavior. Indeed, where is the difference between a schizophrenic who walks around naked because the voices told him to do so and the exhibitionist who, without hallucinations but through some obscure and irresistible inner urge, having no less force than hallucinations, feels driven to expose himself in public? So far as basic motivations are concerned, one is just as insane as the other. Where is the difference between one individual, shortly before fully oriented and seemingly normal, who is provoked into a rage leading to assault and murder, and the paranoiac with a history of long deliberation who seemingly in cold blood kills an innocent man who unfortunately happened to be part of his paranoid system? Objectively, the former would seem less guilty than the latter, for he certainly was not himself when in a rage. But it has been decreed that one is a neurotic and therefore not insane while the other is a psychotic and therefore, *ipso facto,* not responsible. In terms of underlying motivations, both had in them latently a surfeit of aggressive hostility that was brought to the surface by incidental situations. Just as the hallucinations of a schizophrenic or the delusions of a paranoiac cannot be destroyed merely by punishing the person, neither can the exhibitionistic urge be done away with by repeated punishment, or a smoldering hostility that leads to an unprovoked assault neutralized. Both reactions are beyond the conscious control of the person and are therefore removed from the sphere of personal responsibility.

In dealing with the problem of sanity and insanity the law has attempted to draw absolute and clear-cut distinctions that do not exist in reality and has shown an unwillingness to recognize distinctions and differences. In the eyes of the law the man is either sane or insane. Furthermore, the law has equated psychoses with insanity, leaving neuroses out of consideration. In many respects psychiatrists, mainly of the conventional, descriptive type, have subscribed to this. The fallacy of the approach is seen especially in the consideration of psychoses versus neuroses. It is true that psychotics who reach hospitalization are insane in the full sense of the word in that they have more or less lost touch with reality and are unable to take care of themselves. But there are many neuroses in which for all practical purposes the patient has lost touch with reality and requires hospitalization. They resemble psychoses so closely that the original distinction seems all but to have disappeared; indeed, many of them are diagnosed as psychoses; only prolonged hospitalization reveals lack of deterioration and merely invalidism.

The invidiousness of the distinction becomes obvious when the laws relating to sexual psychopaths are studied. The term is defined in the District of Columbia by Public Law 615, 80th Congress (approved June 9, 1948), under Title II, Section 201:

> The term "sexual psychopathy" means a person, not insane, who by a course of repeated misconduct in sexual matters has evidenced such lack of power to control his sexual impulses as to be dangerous to other persons because he is likely to attack or otherwise inflict injury, loss, pain, or other evil on the objects of his desire.

What sort of person, it may be asked, is it who is not to be regarded as insane yet whose repeated misconduct in sexual matters reveals an utter lack of power to control his impulses, an irresistible desire to attack other people without regard for social or personal considerations? Who does not know the paranoid schizophrenic who attacks innocent people and for this reason becomes dangerous to the community? Where is the difference between the sexual psychopath who impulsively attacks an unknown person, and the schizophrenic who does the same thing?

Psychiatric Approach.—Treatment of these conditions already exists, but its availability has hardly reached the profession. When a sexual psychopath comes to the attention of a physician the latter speaks of him as a pervert, a degenerate, to be treated wtih contempt. Most psychiatrists engaged in psychotherapy would rather treat 10 cases of anxiety neurosis than one of paraphilia. There appears to be a conviction among them that the only way to deal with these people is by means of law. But stricter laws, longer sentences, and bigger prisons will not solve the problem, for they do not cure the basic causations. Punishment has never been an effective deterrent in sexual crimes. There are exhibitionists and voyeurs who have served innumerable and long prison sentences without the slightest effect. Only a few centuries ago homosexuals and paraphiliacs were executed on the gallows. If all sexual psychopaths and paraphiliacs were exterminated today the next generation would have just as many as this. Available knowledge suggests that the causation of these reactions is extralegal and generally speaking extrasocial.

The proper treatment of the sexual psychopath is not confinement but psychotherapy, or, better yet, proper sexual education in childhood. But in order to know how to proceed with such education, it is first necessary to know more of the normal sexual development. Thus envisioned, the treatment of the sexual psychopath becomes a social problem in the fullest sense of the word.

PROPHYLAXIS

What is needed above all is prophylaxis, but of this there is as yet virtually nothing. Punishment has never proved to be the deterrent to predatory crime that it has been supposed and is even less so to sex crimes, which are related to situations that lie very close to the instinctive and have arisen early in life. An adequate prevention program should involve not merely sex education, or even education in general, but a complete reorientation of family attitudes with concomitant reconstruction of the training and development of children. To do that it would first be necessary to know more of the psychic genetic factors in the development of sex life. Such studies have only recently been begun, but enough material is available to make a good start.

The importance of studying sexual psychopathology cannot be overestimated. The ramifications of sexual psychopathy are deep and interpenetrating. It is intimately related on the one hand to general and other marginal antisocial behavior and criminality and on the other hand to mental diseases in the widest sense of the term. It goes hand in hand with prostitution, with alcoholism and drug addiction, and with psychoses and neuroses. There is no mental disease that is not involved deeply in the problem of sexual abnormalities, from the schizophrenic whose sex life dwindles down to abortive sex experimentations accompanied by excessive masturbation and not infrequently leading to pedophiliac assaults, through the manic with his seemingly exuberant but all too often deceptively weak sex life, his not very effective efforts at masturbation and other extrabiological experimentations, to the senile pedophiliac who, regressing to second childhood, resorts to sex play with children because of increasing impotence. There are some who believe that sexual pathology lies at the base of mental diseases and most emotional disturbances. In any event, it is an exceedingly important problem in life.

Every year perpetrators of rape and other sexual criminals are being executed or sentenced to long terms of imprisonment. Those who have been executed have carried the secret of their pathology with them. Those who are imprisoned are not being studied. The state gains nothing from a death sentence; society loses. The human psychopathologist has the same reaction toward this as a general pathologist would have were he continuously denied autopsy after autopsy with no opportunity to learn of the structure and function of disease processes. How far would medicine have advanced under such conditions?

There must be an organized formulation of disease. A concerted effort to study the structure and function of sexual aberrations is needed; for this the sexual psychopath provides the best subject. Teams of trained workers to search the records of courts to help learn of the various types of crimes and criminals should be provided; from this it should be possible to develop a workable, if only tentative, classification of the various subtypes within this grouping. An institute where cases could be studied in the fullest possible detail is also necessary. One year an attack might be made on the problem of exhibitionism, another year on pedophilia, still another year on rape, and the like.

But all such plans as proposed are chimerical overambitious dreams, not likely to be realized in the foreseeable future. It is easier to punish than to instruct, to effect discipline than to teach morale. The chance is, therefore, that stricter laws, bigger prisons, and stronger guards will be necessary, while the sexual psychopath will remain a very real member of society.

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CLINICAL NOTES

PULMONARY SPIROCHETOSIS

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Castellani was the first to report on pulmonary spirochetosis, in 1906, and since then many case reports have appeared in the literature, chiefly from the Far East and also from Central and South America. It is generally accepted as a disease entity, although Manson-Bahr, David T. Smith and others doubt the etiological role of the spirochete. Whether or not the spirochetes found in cases of pulmonary spirochetosis are identical with those found in the buccal and pharyngeal cavities of normal persons is still a matter of debate in some circles.

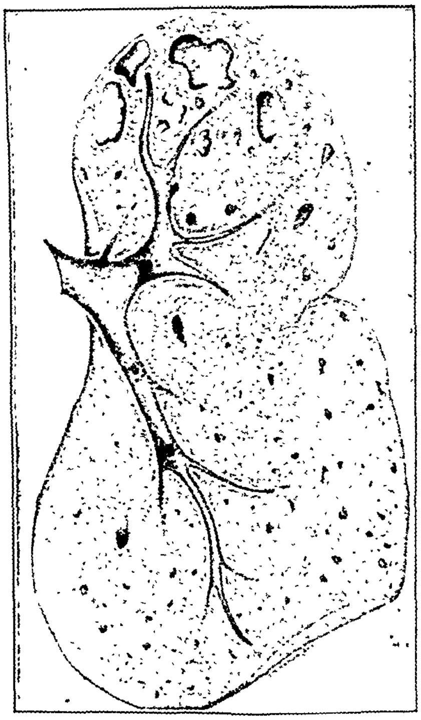

Fig. 1.—Cross section of lung showing cavitation in upper lobe.

The predominating organism in pulmonary spirochetosis is the Spirochaeta schaudinni. It is pleomorphic; the typical form presents a delicate spiral with many uniform coils, one end being blunt and the other pointed. It is stained easily with ordinary dyes and can be cultivated on artificial mediums. The fusiform bacilli found associated with the spirochetes probably represent a stage in the life cycle of the organism.

Clinically, the disease may be divided into acute and chronic forms, with manifestations indistinguishable from other acute or chronic pulmonary infections. The degree of clinical evidence is a matter of massive or mild infection and host resistance. There are no characteristic signs or symptoms to distinguish pulmonary spirochetosis from pulmonary tuberculosis, mycosis or other infections of the lungs. The roentgenographic changes are not distinctive and are not used as an aid in the differential diagnosis.

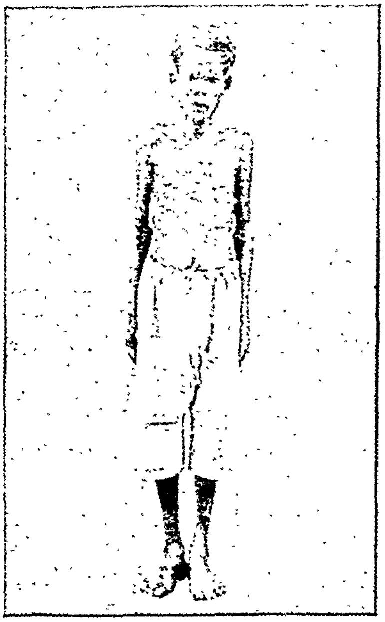

Fig. 2.—Patient with far advanced pulmonary spirochetosis.

I have observed the condition as a disease entity many times in the Orient, the diagnosis being established by the complete exclusion of other etiological factors, the production of pulmonary lesions in monkeys after intratracheal inoculation of infected material and the recovery of the organism in quantity from the lesions in the inoculated animals.

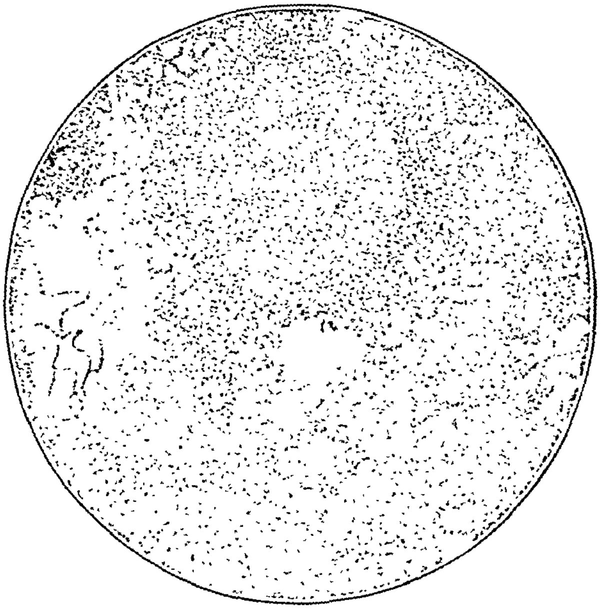

Fig. 3.—Microphotograph (low power) illustrating extensive necrosis of lung tissue.

The following case is one of far advanced infection.

REPORT OF A CASE

A 38 year old oriental applied for treatment, complaining of loss in weight, anorexia, bouts of fever, productive cough and hemoptysis. He had been ill a year and had taken a variety of native remedies, including such mixtures as powdered tigers' whiskers and claws and various native herbs, combined with the application of dung plasters to his chest.

Physical examination revealed a rather cadaverous person, with a pulmonary condition indicative of far advanced tuberculosis. The roentgenogram substantiated this diagnosis, but painstaking laboratory investigation, including inoculation of infected material into animals, failed to revealed an acid-fast organism. The sputum was frothy and pink, contained many S. schaudinni and was practically free of other organisms, with the exception of numerous fusiform bacilli and staphylococci. Intratracheal inoculation into monkeys resulted in active pulmonary lesions from which spirochetes were recovered, and reinoculation of the recovered material resulted in active disease in the lungs of previously healthy animals, from which the spirochete was also recovered. The patient died after a severe pulmonary hemorrhage, and the autopsy revealed extensive cavitation and parenchymal necrosis; proliferative lesions were not observed. No acid-fast organisms were recovered from the postmortem material, and inoculation of the same into animals was nonproductive of tuberculous lesions.

COMMENT

Although patients with pulmonary tuberculosis harbor at times spirochetes as saprophytes, extensive pathology may result from infection with S. schaudinni. Early diagnosis and treatment with arsenicals will cure the acute disease in practically all cases and arrest the moderately advanced in many, but fatal results are not unknown.

SPONTANEOUS CEREBROSPINAL RHINORRHEA WITH REMISSION FOLLOWING DYE INJECTION

Alfred Kahn Jr., M.D., Little Rock, Ark.

Spontaneous cerebrospinal rhinorrhea is a rare disease. Coleman and Troland[1] defined spontaneous or idiopathic rhinorrhea as the discharge of spinal fluid that occurs through the nose in the absence of (1) trauma to the head, (2) infections of the bones of the paranasal sinuses, (3) tumors eroding the base of the cranium, (4) prolonged increased cerebrospinal pressure, and (5) demonstrable congenital anomalies. They found only 12 cases in the literature since 1920, and only two additional cases were found in the literature by me. Cloward and Cunningham[2] reported one case, of four months in duration, affecting the left side. Surgical intervention was instituted, and the flow stopped. The other case, of nine months in duration, in which infection was the mode of onset, was reported by Love and Gay.[3] In this case, also, surgical intervention was instituted, and the flow stopped. Love and Gay reported two other cases but they do not seem to fulfill the above criteria.

Various explanations which have been offered as to the mode of escape of the cerebrospinal fluid have been reviewed: fluid escaping through remnants of the craniopharyngeal canal, a persistent olfactory ventricular lumen, holes in the cribiform plate, fluid escapes along the nerve sheath, and areas of the cribiform plate which are deprived of nerves.

The case reported here fulfills all the criteria of spontaneous cerebrospinal rhinorrhea. This case is of additional interest because the dye substance, indigo carmine, used in the diagnostic test may have been responsible for the cessation of the rhinorrhea.

REPORT OF CASE

History.—The patient, a 47 year old woman, stated that she had been completely well until 1947, when she first began to feel as though her throat were filling with liquid. There was no cough or sputum. A check by a local otolaryngologist disclosed some fluid collecting in the region of the larynx, but the source of the liquid was not identified. The moisture continued to collect, and the amount increased as time went by. In June, 1949, while she was bending over, a profuse clear discharge from the left nostril developed in the patient. This continued unabated, the liquid dripping from the anterior nares at the rate of about 1 fluid ounce (30 cc.) per hour. It was colorless, devoid of mucous, and had a salty taste. In August, 1949, the patient began having intermittent bouts of fever up to 100 F., which usually occurred in the morning about 9:00 and lasted from one to two hours. There were occasional chills with the fever. A chest x-ray, which was then taken, disclosed a cloudy infiltration in the left lower lung field.

The family history, habit history, social history, and past history were noncontributory. The patient denied injuries of the head, headaches, and signs and symptoms of intracranial tumor.

Physical Examination.—Physical examination found the patient's height to 5 ft. 6½ in. (169 cm.); weight, 180 lbs. (81.6 Kg.) and oral temperature, 99.2 F. The blood pressure reading was 138/78. The pulse was 80 a minute, and the respirations were 20. There was a watery, nonmucoid, clear, left nasal discharge amounting to 60 cc. an hour. The ears showed a minimal scarring of both drums. There was no adenopathy; the thyroid was not enlarged; the heart was normal, and lungs were clear. No masses were felt in the abdomen. The pelvic, skin, and neurological examinations were not remarkable.

X-Ray of the Skull.—A roentgenologic examination of the patient's cranium was made by Dr. D. A. Rhinehart. Left lateral stereoscopic x-rays of the entire skull and oblique stereoscopic x-rays from above downward and forward through the skull, the orbits, and the bones of the face were taken. The examination of the lateral roentgenograms showed nothing suggesting any cranial or intracranial disease. Examination of the oblique roentgenograms was noncontributory except for four cyst-like shadows in the left ethmoid region; these had no counterpart on the right.

Laboratory Studies.—The findings of the laboratory studies on the blood and the urine were essentially normal, and the stool was guaiac negative. Chemical analysis of the left nasal fluid revealed a protein content of 16.6 mg. per 100 cc., sugar, 58%; chlorides, 735 mg. per 100 cc., and rare epithelial and white blood cells.

As a special diagnostic test, 2 cc. of indigo carmine dye was injected by Dr. Robert Watson at the fourth lumbar interspace; shortly thereafter the dye appeared in the fluid from the nose.

Course.—The patient was hospitalized on Sept. 23, 1949, for the indigo carmine dye injection and was discharged later the same day. That afternoon the patient developed a severe headache, which continued throughout the following day. Through this period the drainage continued. It spontaneously ceased approximately 36 hours after the dye injection. Because of the severe headache, approximately 48 hours after the dye injection the patient was rehospitalized in a neighboring city. A diagnostic lumbar puncture was performed, and the rhinorrhea began again

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1. Coleman, C. C., and Troland, C. E.: Surgical Treatment of Spontaneous Cerebrospinal Rhinorrhea, Ann. Surg. 125: 718, 1947.
2. Cloward, R. B.; and Cunningham, E. B.: Use of Gelatin Sponge in the Prevention and Treatment of Cerebrospinal Rhinorrhea, J. Neurosurg. 4: 519, 1947.
3. Love, J. G., and Gay, J. R.: Spontaneous Cerebrospinal Rhinorrhea: Successful Surgical Treatment, Arch. Otolaryng. 46: 40 (July) 1947.

and continued for several hours. The spinal fluid was negative. The only subsequent reappearance of the spinal fluid occurred after a second diagnostic lumbar puncture, five days after the readmission to the hospital; that drainage lasted less than one hour. The rhinorrhea has not recurred in more than one year.

COMMENT

This case fills all the criteria of a spontaneous idiopathic cerebrospinal rhinorrhea, as there was no history of trauma or infection, no demonstrable tumor, no increase in cerebrospinal fluid pressure, and no apparent congenital defect.

The cessation of the rhinorrhea is curious. No therapeutic measures were instigated. One might speculate as to whether or not the indigo carmine dye could have started an inflammatory reaction which eventually sealed off the meningeal defect. An alternate possibility is that, in performing the lumbar puncture, the pressure drop was sufficient to let bacteria into the defect; their proliferation might then cause sufficient tissue reaction to seal the leaking point.

The patient has had no further fever. The fever seemed to be related to the rhinorrhea, although it is not possible to say if this was due to infection at the site of the leak, or secondary to pulmonary infection from the constant drainage into the lungs.

Inasmuch as the rhinorrhea has not recurred, the consulting neurosurgeon advised against any operative intervention at this time. Since the patient has had no nasal drippage for approximately 12 months, it is possible that future surgery can be avoided.

SUMMARY

A case of spontaneous cerebrospinal rhinorrhea that fulfills the requirements suggested by Coleman and Troland, is reported.

The rhinorrhea stopped without surgical or medical intervention and has not recurred for 12 months.

The possibility that the dye substance injected (indigo carmine) or infection caused the rhinorrhea to stop is discussed.

ADDENDUM

On two occasions since the submission of this article, the patient has been given careful examinations without evidence of recurrence of the rhinorrhea. On May 14, 1951, without antecedent infection, exertion, or injury a slow discharge of spinal fluid recurred from the left nostril; this has continued to date.

437 Donaghey Building.

Preventive Medicine.—The most important concept of the century in the field of medical care is the idea that preventive medicine is an integral and necessary part of the everyday practice of medicine. It is not a separate body of knowledge to be understood only by a skilled technician who has been highly trained in this field. There is no "specialty" of preventive medicine, as there is a specialty in surgery, radiology or pediatrics. There is, of course, a specialty of public health, which is a well organized body of knowledge and requires a high degree of skill. But preventive medicine must function in conjunction with diagnosis, treatment and rehabilitation. These are the four basic elements of every physician's continuous plan of medical care for each of his patients.—W. G. Smillie, M.D., Medicine as a Social Instrument: Preventive Medicine, *New England Journal of Medicine,* March 1, 1951.

COUNCIL ON PHARMACY AND CHEMISTRY

The following paper is published as a supplemental report to previous reports on organomercurial compounds submitted to the Council (J. A. M. A. **136:***36 [Jan. 3] 1948;* **137:***858 [July 3] 1948;* **140:***401 [May 28] 1949).*

The authors propose two tests as valid methods of evaluating the relative potency of antiseptics. These tests are performed on laboratory animals and are based on the protective power of antiseptics against lethal doses of tetanus spores. Antiseptics are evaluated by their ability to prevent death under the conditions of the tests.

In the first test, a lethal dose of tetanus spores, suspended in a necrotizing agent, is injected under the shaved skin of the animal. The antiseptic to be tested is then injected into the bleb formed by the suspension of spores. This method of evaluation would simulate conditions of use more closely and be more convincing if, after injection of the tetanus spores, the antiseptic were injected at varying times.

In the second test, the antiseptic is injected first and the suspension of tetanus spores is injected afterward into the same area at varying intervals of time. This test scarcely approximates the conditions of actual use.

R. T. Stormont, M.D., *Secretary.*

USE OF TETANUS SPORES FOR TESTING ANTISEPTICS IN VIVO

John H. Brewer
and
C. Baxter McLaughlin, Baltimore

In a report of Jan. 3, 1948,[1] the Council on Pharmacy and Chemistry of the American Medical Association suggested that the "field of usefulness of organic mercurials should be explored, proved and defined. The proponents of these preparations should proceed seriously and diligently to this task." In following this suggestion of the Council we have developed a method which simulates conditions of use instead of employing test-tube experiments. We believe that this method encompasses the features required of a feasible antiseptic test, since the experiment takes place entirely in the animal body. Because death serves as the end point, it is unnecessary to read questionable clinical results or interpolate measurements.

Past studies have been criticized on the ground that streptococci and pneumococci change in virulence. Reported differences in antiseptic activity may be traced to insufficient mouse passage. Also, in the case of streptococci, pneumococci and anthrax, death in the experimental animal is due to a generalized septicemia. Consequently, an organism was sought which would not change in virulence and would cause death even if very small foci of infection developed. A strain of Clostridium tetani with which we had worked for many years was chosen; its virulence is constant and it can be relied upon to cause death in white mice even though the foci of infection are so small as to escape detection.

Spore suspensions of this organism were prepared and freed from vegetative cells by a previously described technique,[2] and the stock suspension was made to contain about 1,000,000 spores per milliliter.

From the Biological Research Laboratories, Hynson, Westcott & Dunning, Inc.

[1] Morton, H. E.; North, L. L., Jr., and Engley, F. B.: Bacteriostatic and Bactericidal Actions of Some Mercurial Compounds on Hemolytic Streptococci: In Vivo and in Vitro Studies, Report to the Council on Pharmacy and Chemistry, J. A. M. A. **136:** 37 (Jan. 3) 1948.

[2] McLaughlin, C. B., and Brewer, J. H.: Toxin Production from Non-Toxin Producing Clostridium Tetani, read before the Society of American Bacteriologists, May 19, 1949, Cincinnati.

In order to approach actual conditions in which antiseptics are used and because we could not consistently infect through skin abrasions,[3] we resorted to other routes of infection.

We originally employed an intramuscular technique in which the tetanus spores and antiseptics were mixed in vitro and injected into the mouse.[4] By means of this technique, many of the common antiseptics were capable of preventing death in most of the animals. Since this was partially an in vitro test, Dr. Henry Welch, of the Food and Drug Administration, suggested that we inject the spores separately. In this type of test, however, results were inconsistent mainly because of our inability to relocate exactly the site of injection.

The classical experiments with tetanus indicate that it produces fatal infection primarily in deep puncture wounds,[5] and, therefore, a bleb containing tetanus organisms raised just under the surface of the skin might not be fatal in animals. However, it was decided to mix the spores with a necrotizing agent (6% $CaCl_2$ solution)[6] and to raise a bleb with 0.1 ml. injection just under the skin. All animals so treated died within four days with typical tetanus convulsions.

The experimental technique is to prepare a suspension of spores that contains between 10 and 100 m.l.d. per 0.1 ml. Dilution is made with 6% $CaCl_2$ solution. A bleb is raised under the shaved skin on the back of a mouse (20-25 gm.) by injection of 0.1 ml. of the prepared suspension. Into this bleb is injected 0.1 ml. of the antiseptic being tested. Extreme caution must be observed at this point to make sure that the antiseptic is injected into the original bleb. The success of the test is determined mainly by the care with which this is done.

This type of test was performed in order to determine the ability of commercial preparations of various antiseptics to prevent death under these conditions. The undiluted commercial preparations of antiseptics varied greatly in ability to prevent infection. This observation was confirmed by the close correlation of results in two separate laboratories, shown in the following table.

It was suggested that exposure of the tetanus spores to the direct action of the antiseptics might affect the toxin-producing mechanism of the organisms but not affect the growth of the bacteria. In this case, the treated animal would not die and death then could not serve as an end point. To eliminate this possibility, we exposed 1,000,000 spores of Clostridium tetani to 9 cc. of 2% aqueous merbromin for 24 hours. Tetanus-toxin-producing media containing sodium thioglycollate as a mercurial neutralizer was then inoculated with this tetanus-merbromin mixture. Growth from these treated spores was similar to that of organisms which had not been exposed to the mercurial. Animal titrations indicate that this treatment did not impair the toxin-producing ability of the organisms.

TABLE 1.—*Relative Efficacy of Certain Antiseptic Substances in Experimental Tetanus* *

Antiseptic	Laboratory 1 † % Protected	Laboratory 2 ‡ % Protected	Average % Protected
Benzalkonium chloride..	80	88	84
Merbromin...............	80	84	82
Iodine 2%................	76	84	80
Nitromersol..............	68	72	70
Phenol 2%...............	56	52	54
Thimerosal..............	36	55	46
Control..................	0	0	0

* A total of 350 mice were used in this experiment.

† *Antiseptic Section, Microbiological Division, United States Food and Drug Administration.*

‡ Bacteriological Research Laboratories, Hynson, Westcott & Dunning, Inc., Baltimore.

This technique of injecting tetanus spores and antiseptics separately into blebs in animals demonstrated that fatal infection could be prevented according to the efficacy of the antiseptic. The test was then redesigned to determine, if possible, the duration of antiseptic effectiveness. Specifically, does the antiseptic stay in the place where applied, or is it diffused, absorbed, or neutralized in some fashion by the animal body? For this investigation the following procedure was adopted:

The antiseptic to be tested was first introduced into the animal body by injection and later, at stated intervals, the usual mixture of test organisms (tetanus spores) and $CaCl_2$ solution was injected into the original bleb. The basic idea of antisepsis is that antiseptics should be effective over a period of time, not only to destroy or to prevent the growth of pathogenic organisms present in a wound, but also to prevent subsequent or secondary infection. Table 2 shows the lasting protection provided by certain antiseptics under conditions of this test.

TABLE 2.—*Lasting Protection Afforded by Various Antiseptics (Percentage Protected)* *

Antiseptic	Immed.	1 Hr.	2 Hr.	4 Hr.	8 Hr.	24 Hr.
Benzalkonium chloride........	28	23	24	25	5	5
Merbromin.....................	84	74	73	84	80	30
Iodine 2% (aqueous)..........	90	0	0	0	0	0
Nitromersol....................	50	44	70	45	20	0
Phenol 2%.....................	0	10	5	0	0	0
Thimerosal....................	6	20	20	0	0	0
Control........................	0	0	0	0	0	0

* A total of 920 mice were used in this experiment.

COMMENT

It is not suggested that any of these antiseptics can be depended on to prevent infection by tetanus organisms in deep puncture wounds. Also, the exact ratios of protection depend upon the number of lethal doses of spores injected, a technical feature which should be observed by anyone attempting to follow this technique. For example, if one uses too few viable spores, a higher percentage of protection is afforded by a given antiseptic; but death does not occur in all the controls. On the other hand, too many viable spores cause a low rate of protection but kill all the controls. In order to obtain consistent results, one should determine the minimum number of spores that will kill all of the controls and use some reasonable multiple of this for the test. Such a test may be duplicated in other laboratories. We routinely use approximately 10 M. L. D. as the challenge dose in our tests, even though an antiseptic is rarely called upon to protect against even one lethal dose of a pathogenic organism.

The percentage of protection afforded by the various antiseptics under the conditions of these experiments has been derived from experiments utilizing more than 2,600 mice. At least 10 mice were used in every test at each dilution and each time interval. Proficiency in finding the site of original injection is acquired only by practice in the technique. In these experiments, the results have been remarkably consistent, but only after a series of experiments to develop technique.

Iodine (2% aqueous), which has a good antiseptic rating with most investigators, shows up well when the organisms are injected immediately following the antiseptic. However, when an hour or more is allowed to elapse between antiseptic and tetanus spore injections it is not effective, indicating that it is quickly absorbed or neutralized.

Explanation of the mechanism of activity of the various antiseptics has not been attempted. However, one might reason that since the antiseptic activity of the various mercurial preparations varied so greatly, it may depend on the actual amount of antiseptic present in the marketed strength of the different solutions. Merbromin (mercurochrome®), which gave the best protection over an extended time period, is supplied in a 1:50 (2%) dilution. Nitromersol was used in a 1:500 dilution, and thimerosal is routinely used in a 1:1,000 dilution.

SUMMARY

A new technique, employing living animals, has been developed for testing antiseptics. It is submitted that these tests closely approximate conditions of actual use. Results of this study prove the efficacy against infection of certain commercial antiseptics when used in the animal body. The duration of protection against infection is determined by the property of some antiseptics, particularly certain mercurials, to remain active at the site of infection in the living animals for as long as 24 hours.

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3. Brewer, J. H.: Reduction of Infectivity of Certain Pathogenic Bacteria by Mercurochrome, J. A. M. A. **137**: 858 (July 3) 1948.

4. Brewer, J. H.: Mercurials as Antiseptics, Ann. New York Acad. Sc. **53**: 1, 1950.

5. Frobisher, M., Jr.: Fundamentals of Bacteriology, ed. 3, Philadelphia, W. B. Saunders Company, 1944, p. 523.

6. Topley, W. W. C., and Wilson, G. S.: Topley and Wilson's Principles of Bacteriology and Immunity, ed. 3, Baltimore, William Wood & Company, 1946, p. 1206.

COUNCIL ON FOODS AND NUTRITION

The following statement was accepted by the Council and presented before the House Select Committee to Investigate the Use of Chemicals in Food Products, House of Representatives, Eighty-First Congress, Second Session, created pursuant to H. Res. 323. JAMES R. WILSON, M.D., *Secretary.*

CHEMICAL ADDITIVES IN FOODS

"A wholesome food is a product which makes a significant contribution to human dietary requirements and which is clean and free from micro-organisms and chemical additives of such quality or in such quantity that they may be directly injurious or result in reduced nutritional quality." This definition has been accepted by the Council on Foods and Nutrition. A portion of the statement accompanying this definition reads: "Although these basic concepts have acquired general recognition, the development recently of a large number of chemical technologic aids has emphasized the necessity for re-examining our idea of a wholesome food, particularly from the point of view of its freedom from chemical additives which may be harmful to the consumer because of toxicologic effects or because their incorporation in food causes or makes possible the reduction of nutritive value."

Chemical additives may appear in foodstuffs incidental to the production of the food or to its processing or packaging.

Chemical additives may be intentionally introduced into foodstuffs in order to improve the nutritive quality of the food (such as the addition of vitamin A to margarine) or to impart some particular quality, such as a desired texture or color, to the product. Some intentional additives may improve the keeping quality of food products.

It is apparent that chemical additives present in food may alter the nutritive quality of the foodstuff—either improve or dilute the nutritive quality. In addition, the presence of chemical additives in food poses the question of the hazard involved in their use due to their potential toxic qualities.

The possible toxicity of chemical additives to foods presents to us the difficult task of ascertaining the safety of an agent for daily or frequent ingestion throughout the life-span of men in both health and disease. In the case of the incidental chemical additives uncertainty of their presence or absence in food products presents the problem of accurate practical tests for their detection and quantitative determination.

Considerations of this sort lead to the acceptance by the Council at its annual meeting in 1949 of the following statement (*J. A. M. A.* **142**:259 [Jan. 28] 1950):

"The introduction of numerous new synthetic organic pesticides offers promise for increasing the nation's food supply and improving health through the control of insects and other pests. Past experience, however, indicates that poisons cannot be used safely on food crops without the development of certain fundamental knowledge concerning the poisons. What these materials will do to pests and food crops and to the workers who handle them must be known, and there must be developed, also, a knowledge of what these materials will do to warm-blooded animals and man when small amounts of residue are incorporated in their foods. Furthermore, practical methods of analysis should be available to permit identification and measurement of residue that may persist on or in consumer products. Such essential information is undeveloped for many of the agricultural poisons now in use.[1]

"It is the opinion of the Council on Foods and Nutrition that the information on the following factors should be supplied before pesticides, that may contaminate food or forage crops, are released for general use: (1) Chronic as well as acute toxicity tests. These should be carried out in such a manner as to demonstrate satisfactorily the toxicologic effects of pesticides on warm-blooded animals and man. (2) Accurate methods of isolation and quantitative determination of pesticide residues in biologic material. These methods must be sufficiently rapid as to be of practical use in the examination of perishable foods.

"Thorough pharmacologic investigation and practical quantitative methods are two of the most vital and pressing current needs in this field. The fundamental requirement for the orderly development of needed information must not be ignored. Unless this information is supplied, safe methods for handling and use cannot be developed. Furthermore, unless this information is supplied before new agricultural poisons are released for general distribution, accidents may occur which will offset the potential benefits of these new materials and cause delay in their adoption."

Intentional chemical additives may, as has already been noted, permit the lowering of the proportions of important food ingredients in the product and thereby result in a dilution or deterioration in nutritive value of the food. If the food happens to be a basic one, this effect may be cause for real concern.

The Council recognizes the important advantage of the proper use of such agricultural aids as pesticides and of certain of the intentional chemical additives. It holds, however, that proper information concerning the toxicologic effects, the possibilities of residues in foodstuffs, methods of detection and assay, must be developed before a pesticide which is likely to find its way into foodstuffs is permitted to be marketed.

Intentional chemical additives, especially those likely to find their way into basic foodstuffs or to find widespread application in a variety of foods, each of which may be infrequently eaten, must not be permitted until the complete harmlessness of these agents can be demonstrated beyond reasonable doubt. Furthermore, the use of additives which lead to a significant decrease in nutritive value should not be permitted.

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

The Beech-Nut Packing Company, Canajoharie, New York.

BEECH-NUT COOKED BARLEY CEREAL. Ingredients: Barley flour, casein and non-fat dry milk solids, dried malt syrup, dried Brewer's yeast, dicalcium phosphate, salt, sodium iron-pyrophosphate and thiamine hydrochloride.

Analysis (submitted by manufacturer).—Total solids 93.8%, moisture 6.2%, ash 5.4%, fat 3.3%, protein 15.2%, crude fiber 1.0%, carbohydrates other than crude fiber (by difference) 68.9%.

Vitamins and Minerals	Per Hundred Grams
Thiamine	1.66 mg.
Riboflavin	1.62 mg.
Niacin	5.3 mg.
Calcium	800 mg.
Phosphorus	1000 mg.
Iron	50 mg.
Copper	0.8 mg.

Calories.—3.7 per gram; 106 per ounce.

Use.—For use in the feeding of infants and young children

International Nutrition Laboratories, Inc., Mount Vernon, Ohio

SOYALAC—HYPO-ALLERGENIC INFANT FOOD. Ingredients: Soya bean solids, dextrose, maltose, dextrin, sucrose, soya oil, olive oil, salt, dibasic calcium phosphate, calcium carbonate and ferric ammonium citrate.

Analysis (submitted by manufacturer).—*Protein* (N × 6.25) 22.73%, fat 25.77%, fiber 0.68%, carbohydrate 44.08%, ash 3.86%, moisture 2.85%, calcium 0.73%, phosphorus 0.33%, iron 0.017%.

SOYALAC as liquefied in the following designated proportions yields the following percentages:

	1:7	1:6
Protein	2.88%	3.25%
Fat	3.22%	3.68%
Carbohydrate	5.51%	6.30%
Moisture	87.70%	86.07%
Calories per fl. oz.	20	22

Use.—For use as a hypoallergenic infant food.

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[1] Since the acceptance of this statement, progress has been made and those manufacturers of pesticides who supported the work are to be congratulated.

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SURGICAL TREATMENT OF LUMBAR DISK LESIONS

The literature of the past 15 years contains a number of contributions dealing with rupture of the intervertebral disk and propulsion of the nucleus pulposus into the spinal canal as a cause of intractable back pain and sciatica. The exact knowledge of the anatomy and embryology of this long-neglected structure dates back to the anatomic studies of von Luschka. A correct clinical or pathological approach to the subject, however, is a recent contribution. The accurate and painstaking necropsy studies of Schmorl provide scientific basis for the role assumed by this structure in a number of clinical conditions. The earliest clinical report of this condition was that of Goldthwaite, who reported a case of sciatica and paraplegia due to posterior herniation of the intervertebral disk at the lumbosacral junction. He suggested that such displacements might be the cause of many cases of sciatica, lumbago, and back strain. Mixter and Barr established the clinical relationship between the protruded nucleus pulposus and intractable back pain and sciatica in certain cases.

O'Connell,[1] in his Hunterian Lecture (Feb. 16, 1950), analyzed the results of surgical treatment of 500 cases of proved lumbar intervertebral disk protrusion on which he operated between January, 1938, and May, 1948, at St. Bartholomew's Hospital. O'Connell infers from his experience that back pain from a disk protrusion is seldom so severe, so persistent, or so frequent as to require operation. Occasionally, pain affected both lower limbs, either simultaneously or in succeeding attacks. In over 90% it was felt in one leg alone, and the left was involved more often than the right in the proportion of three to one. A clinical diagnosis of lumbar intervertebral disk protrusion is more accurate than a myelographic diagnosis. O'Connell believes that it is unnecessary to perform either lumbar puncture or myelography to make a diagnosis. The diagnosis is readily made in most patients by careful clinical and radiologic study. The problem is not in diagnosis but in the decision as to the correct treatment.

The early enthusiasm and the operative furor that followed the discovery of the role of the protruded disk in the causation of back pain and sciatica were soon followed by a more critical attitude in view of the many disappointing results. O'Connell justly remarks that the natural history of lumbago and sciatica has not been altered by the discovery of their common cause and that the tendency to spontaneous recovery remains as strong as it has been through the centuries. Rest during the stage of acute symptoms, with later exercises for the lumbar muscles and joints, constitutes the correct treatment in most patients. Only when an adequate trial of such measures fails to bring relief should surgery be considered. O'Connell's series of 500 patients treated surgically represents but a small proportion of patients seen in the outpatient department in whom a clinical diagnosis of protruded lumbar intervertebral disk has been made. He concludes that excision of a lumbar intervertebral disk protrusion is required in only a small proportion of patients with this lesion. A careful clinical and radiologic examination of cases of lumbago and pain in the lower limb provides good evidence not only of the presence of a lumbar intervertebral disk protrusion but also of its anatomic level, size and relationships. In most of the selected cases, a carefully performed operation designed to relieve the affected nerve fibers from forces that stretch and compress them will give satisfying relief of symptoms. In his series, 92% of the patients were either completely free from symptoms or very greatly improved after operation.

In his discussion of the causes of unsatisfactory results from the operative treatment of lumbar disk lesions, Armstrong[2] stresses that there were in the reported series between 5% and 40% of unsatisfactory results. A wrong diagnosis is perhaps the most frequent cause of unsatisfactory results from operation. The causes of failure, according to this author, in patients with genuine disk lesions who are not relieved by operation are failure to locate the lesion, or failure to recognize a double lesion. In 12% to 20% of all patients, both the disk between the 4th and 5th lumbar vertebrae and the disk between the 5th lumbar and 1st sacral vertebrae are affected simultaneously; such a double lesion cannot be recognized clinically. Other causes are failure to deal with a bilateral lesion and subsequent further retropulsion of nuclear tissue. It is not enough to remove the displaced nuclear tissue alone; the whole diseased nucleus must be removed. The root may be damaged while it is being freed or by too vigorous retraction. In a definite number of cases, subsequent prolapse of a previously healthy disk can take place. There may be permanent changes in the nerve root, damage to the posterior articular facets, and arthritis of the intervertebral joint.

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[1] O'Connell, J. E. A.: Protrusion of the Lumbar Intervertebral Discs: A Clinical Review Based on 500 Cases Treated by Excision of the Protrusion, J. Bone & Joint Surg. 33-B: 8 (Feb.) 1951.

[2] Armstrong, J. R.: The Causes of Unsatisfactory Results from the Operative Treatment of Lumbar Disc Lesions, J. Bone & Joint Surg. 33-B: 31 (Feb.) 1951.

Armstrong is opposed to the performance of arthrodesis in addition to the removal of the herniated material. He feels that it is unnecessary for the vast majority of patients and that it increases the immediate operative difficulties and hazards and greatly increases the period of postoperative incapacity. When necessary, arthrodesis can be performed in a second stage. Postoperative infection in the form of wound infection, meningitis, or osteomyelitis of the vertebral bodies can occur. Such complications as gross damage to the spinal theca, to the cauda equina, or to extrathecal nerve roots can be largely avoided by proper surgical technique.

The views expressed by the British surgeons are very much in agreement with those of the surgeons this side of the Atlantic.

FOLIC ACID

Folic acid is the official name for a pteroyl acid ester containing paraaminobenzoic acid and one molecule of glutamic acid. This compound is also known as pteroylglutamic acid or folacin. It is considered to be a member of the vitamin B complex and was first prepared synthetically in 1946.[1] It has been shown to serve as an essential metabolite for a number of bacteria, including Lactobacillus casei and Streptococcus lactis R, and for growth and red cell development in the chick. It will cure certain nutritional macrocytic anemias in man and is active hematologically in pernicious anemia, although it does not prevent the development of neurological complications.

Folic acid occurs widely in nature, both free and in the form of conjugates containing either two or six additional glutamic acid groups. These can be converted to pteroylglutamic acid by the action of specific enzymes.[2] Recently, evidence has accumulated that indicates that the biologic activity of folic acid is actually vested in one or more of its metabolic products. In 1948, Sauberlich and Baumann [3] reported that crude liver extracts, yeast extracts, bacto®-peptone and a rice-bran concentrate contain a substance essential for the growth of Leuconostoc citrovorum and that the concentration of this so-called citrovorum factor does not parallel that of either folic acid or of the antipernicious anemia factor. Folic acid in high amounts did support the growth of the bacteria, but only after a delay of 24 to 36 hours. It was further shown that, when rats or humans are fed large amounts of folic acid, increased amounts of citrovorum factor appear in the urine.[4] Nichol and Welch [5] have reported that liver of folic-acid-deficient rats is low in both citrovorum factor and folic acid and that addition of folic acid to slices of such liver and to normal livers increases the amount of citrovorum factor, the yield being further increased by the addition of certain reducing agents, particularly ascorbic acid. They also showed that the conversion of folic acid to citrovorum factor is inhibited by the folic acid antagonist 4-aminopteroylglutamic acid (aminopterin) and that the citrovorum factor is much more effective than folic acid in protecting rats against the toxic effects of 4-aminopteroylglutamic acid.

In independent studies on the metabolism of folic acid, Shive and his co-workers [6] isolated from enzymatic digests of hog liver a crystalline substance which was considerably more active than folic acid in protecting a number of bacteria against the toxic action of methylfolic acid and which supported the growth of L. citrovorum. They called this substance folinic acid and showed it to be present in high amounts in crude liver extracts, hog duodenal mucosa and grass and in much lesser amounts in milk, muscle tissue and yeast extract. Paper chromatography studies of hog liver extracts indicated the presence of a group of compounds, the folinic acid group, all of which possess activity similar to that of folinic acid. Mild acid hydrolysis destroys the folinic acid activity, but the compound formed has biologic activities corresponding to folic acid. Recently, these investigators,[7] and Brockman [8] and his associates described the synthesis of preparations with the properties of folinic acid.

Preliminary experiments indicate that folinic acid preparations promote blood regeneration in persons with pernicious anemia, nutritional macrocytic anemia and tropical sprue in relapse,[9] reverse the toxic effects of folic acid antagonists in man [10] and replace folic acid in the diet of the chick.[11]

Since at least one organism requires preformed folinic acid, since all organisms can apparently use folinic acid in place of folic acid and since folinic acid is more effective than folic acid in overcoming the inhibitory effects of folic acid antagonists, it is probable that folinic acid is the enzymatically active form of the vitamin or represents it more closely than folic acid. As has recently been pointed out,[12] an analogous situation obtains in the vitamin B_6 group. In this case, pyridoxine was the first form of the vitamin discovered. Later pyridoxal and pyridoxamine, both more active than pyridoxine, were found to constitute most of the vitamin B_6 activity in natural diets; it is now believed that pyridoxal phosphate is the form of the vitamin actually used for metabolic purposes.

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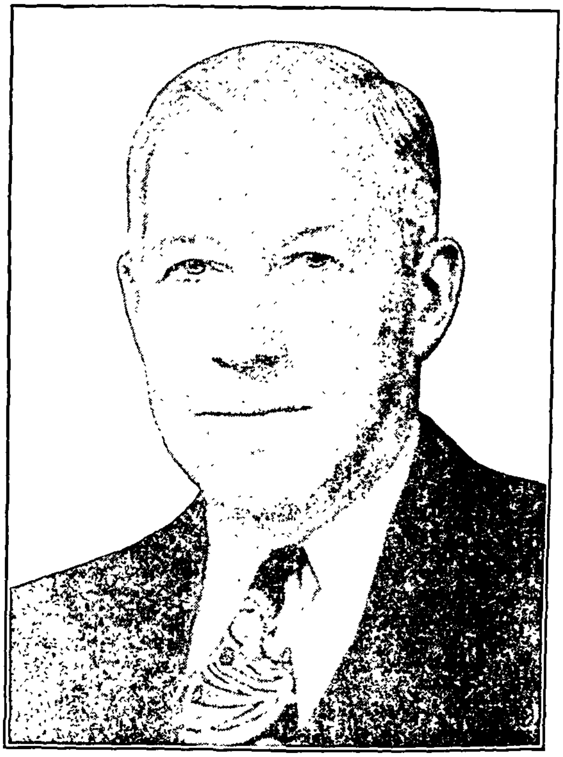
THE PRESIDENT-ELECT—DR. LOUIS H. BAUER

In recognition of his long and distinguished service to medicine, the House of Delegates of the American Medical Association at the 100th annual session in Atlantic City, June 14, elected Dr. Louis H. Bauer of Hempstead, N. Y., to the position of President-Elect. Dr. Bauer has been a member of the Board of Trustees of the American Medical Association since 1944 and Chairman of the Board since 1949; he became a member of the Executive Committee in 1947 and was Chairman of the Committee in 1948. He was for many years a member of the House of Delegates, served as Chairman of the Council on Medical Service and as a member of the Committee on Scientific Exhibit. Previously, he had been president of the Nassau County Medical Society and of his district branch medical society, speaker of the House of Delegates of the Medical Society of the State of New York and president of his state medical society. Dr. Bauer was born in Boston and graduated cum laude from Harvard Medical School. He interned at Mercy Hospital in Springfield, Mass., was an honor graduate from the United States Army Medical School and of the United States Army School of Aviation Medicine, and a graduate also from the Army War College in 1926. Dr. Bauer spent 13 years in the Army as a medical officer and was the first Commandant of the Army School of Aviation Medicine. He is now a colonel, United States Army, retired. He was also the first medical director (from 1926 to 1930) of the Aeronautics Branch of the United States Department of Commerce, now the Civil Aeronautics Administration. Since 1930, Dr. Bauer has been in private practice in cardiology at Hempstead. He is attending cardiologist at Nassau Hospital, Mineola, and a consultant at Meadowbrook Hospital in his home town and at some six other hospitals in near-by communities. He is a diplomate of the American Board of Internal Medicine, a fellow of the American College of Physicians, a member of the American Heart Association, of the New York State Public Health Council, and of the Aero Medical Association, of which he was the first president (from 1929 to 1931), an honorary member of Phi Beta Kappa, and was a delegate from the American Medical Association to the American Council on Rheumatic Fever. He received the Distinguished Service Award of the Nassau *Daily Review-Star* in 1949, and was the first recipient of the Lister Award of the Aero Medical Association and of the John Jeffries Award of the Institute of Aeronautical Sciences. For 21 years, he has been editor in chief of the *Journal of Aviation Medicine*. He has contributed many articles on aviation medicine, cardiology, and medical economics to medical journals, is the author of a textbook on aviation medicine, of a book entitled "Private Enterprise or Government in Medicine," and of chapters on aviation medicine in various textbooks and encyclopedias. Dr. Bauer was secretary of the American committee of the World Medical Association and a member of the council of this organization and since 1948 has been Secretary General of the World Medical Association. His election to the position of President-Elect of the American Medical Association is an honor richly deserved for outstanding and faithful service to the profession, to the public, and to his country.



Louis H. Bauer, M.D.
President-Elect of the American Medical Association

LIVER IN EXPERIMENTAL HYPERTENSION

Accumulating evidence indicates that the liver plays an important role in the regulation of systemic blood pressure. Recent experiments[1] have shown that reduction of the blood flow to the liver decreases the blood pressure of dogs with experimental hypertension. In these studies, partial occlusion of the portal vein by means of a Goldblatt clamp was followed by a gradual return of the elevated blood pressure to normal levels. This effect presisted throughout the period of observation, which in some animals extended for more than a year. It was not abolished by the subsequent establishment of a portacaval shunt, indicating that the alterations in the systemic pressure were not due merely to the accumulations of blood in the splanchnic area. Complete interruption of the arterial blood supply to the liver also reduced the blood pressure of the animals to normal, but in this case the hypotensive effect persisted for only a few weeks, presumably because of a compensatory increase in the blood flow through the portal vein. The most consistent reduction of blood pressure was obtained when both the hepatic artery and the portal vein were partially occluded.

During the experiments it became apparent that the decrease in blood pressure was dependent on the production of a mild chronic liver insufficiency. Unless the reduction in blood flow was sufficient to produce fatty infiltration of the liver cells, no hypotensive effect was noted. Usually such histologic changes were accompanied by laboratory evidence of diminished liver function, but the disturbance was surprisingly slight. The foregoing observations confirm the earlier work of Page, McSwain, Knapp, and Andrews,[2] who were able to reduce blood pressure in experimental hypertension by poisoning the liver with a mixture of carbon tetrachloride and alcohol.

Two possible explanations for the reduction of blood pressure under these circumstances have been advanced. One is that the damaged liver is unable to manufacture hypertensinogen, an essential participant in the pressor reaction of renal hypertension, and that this effectively blocks the reaction. A second possibility is that the anoxemic liver produces an active vasodepressor material such as that demonstrated by Shorr and co-workers [3] in liver slices under anaerobic conditions and in the blood of animals in shock. This vasodepressor substance then presumably neutralizes the vasoexcitor substance elaborated by the anoxemic kidney. Perhaps both of these mechanisms are active. More work will be required before these questions can be answered with certainty or before any conclusions can be drawn as to the significance of these factors in man, but the facts already established are of great theoretical importance.

ALLEN WHIPPLE AWARDED DISTINGUISHED SERVICE MEDAL

Allen O. Whipple, M.D.
Awarded Distinguished Service Medal

At the annual meeting in Atlantic City, June 11, the House of Delegates of the American Medical Association awarded the Distinguished Service Medal of the Association to Dr. Allen O. Whipple of New York, an outstanding surgeon and medical investigator. Dr. Whipple was born in Persia, where his parents were missionaries. He graduated from Princeton University in 1904, received his medical degree from the College of Physicians and Surgeons of Columbia University in 1908, and has practiced medicine in New York City since 1910. He was appointed instructor in surgery in 1911 and was professor of surgery at the College of Physicians and Surgeons and director of the surgical service at Presbyterian Hospital in New York for many years. After his retirement from those positions, in 1946, he accepted a position on the faculty of the American University of Bierut, where, as a trustee of the University, he helped plan the new teaching hospital, one of the pioneer medical centers in the Near East. In 1946, Dr. Whipple was appointed clinical director of the Memorial Hospital in New York. His distinguished career has brought many honors, including the Judd Award of the Memorial Hospital in 1946, for having made "the greatest advancement toward the discovery of a cure for cancer," and the Bigelow Medal of the Boston Surgical Society, for contributions to the advancement of surgery. He is a past president of the American Surgical Association and one of the founders group of the American Board of Surgery. He was a member of the Commission on Graduate Medical Education, created in 1938 to help formulate the principles involved in graduate medical training. The esteem in which he was held by his colleagues required his appearance before many scientific societies. Among his notable addresses were the Lister Oration before the annual meeting of the Canadian Medical Association, the Arthur Dean Bevin Lecture of the Chicago Surgical Society, the Stewart Memorial Lecture of the Pittsburgh Academy of Medicine, and the annual Hodgen Lecture before the St. Louis Surgical Society. He is a member of the Surgical Research Society, the New York Surgical Society, the Society of Clinical Surgery, the Practitioners Society, the Society of University Surgeons, the American College of Surgeons, the Medical Society of the State of New York, the American Medical Association, the New York Academy of Medicine, the Century Club, and the Sheraka Club. He maintains an interest in oriental languages and in landscape painting, although still director of surgery at the Memorial Hospital, one of the outstanding centers of the world for cancer research and the treatment of patients suffering from cancer. During World War II, Dr. Whipple was chairman of the Subcommittee on Infected Wounds and Burns of the National Research Council. He has been a prolific writer, contributing especially to surgery of abdominal cancer, and is on the editorial advisory board of the *Annals of Surgery*.

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ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Investigation—Hoxsey Cancer Clinic

Senator Langer of North Dakota introduced Senate Resolution 142, authorizing the Senate Committee on Labor and Public Welfare to conduct a study of the Hoxsey Cancer Clinic of Dallas, Texas. The committee would be authorized to make a complete study and investigation to ascertain whether the methods employed by the Hoxsey Cancer Clinic in the treatment of cancer have proved to be a cure for such disease. The committee would be further directed to make a report to the Senate at the earliest practicable date, showing the results of its study and any recommendations.

School Health Services

H. R. 4322, introduced by Representative Mitchell of Washington, would provide for the general welfare by enabling the several states to make more adequate provision for the health of school children through the development of school health services for the prevention, diagnosis and treatment of physical and mental defects and conditions. This bill is identical with three other House bills and with S. 1411 of the last Congress, which passed the Senate but failed passage in the House.

Problems of the Aging

Representative Yates of Illinois introduced House Resolution 238, which would authorize a select committee on problems of the aging to be composed of seven members of the House of Representatives, all appointed by the Speaker. The committee would be charged with investigating the status of the older age group with respect to its manpower potential and, further, with determining the basic problems of this group in the fields of employment, health, education, and community services, and the federal government's responsibilities to the group. The committee would be instructed to report to the House as soon as practicable, during the present Congress, the result of its study, together with recommendations.

STATE LEGISLATION

California

Bills Introduced.—S. 1457, proposes the creation of a state board of chiropractic examiners and proposes, among other things, that **minor surgery or ambulant surgery** are those branches of surgery which consist of operative procedure by electrical or other methods which do not include the opening of the thoracic, abdominal, or cranial cavities or the amputation of limbs. S. 1818, proposes to **exempt from the sales tax** drugs dispensed on prescriptions filled by registered pharmacists for persons licensed and authorized to prescribe drugs under the business and professions code.

Bill Enacted.—A. 2672 has become Chapter 788 of the Laws of 1951. It amends the Business and Professions Code by providing that whenever the words **"diagnose" or "diagnosis"** are used, they shall include any undertaking by any method, device or procedure whatsoever, and whether gratuitous or not, to ascertain or establish whether or not a person is suffering from any physical, mental or nervous disorder. The terms shall specifically include the taking of a person's blood pressure and the use of mechanical devices or machines for the purpose of representing to any person any conclusion with respect to such person's physical, mental or nervous condition.

Connecticut

Bills Introduced.—H. 326, proposes to authorize **medical group clinics** to form corporations without capital stock for the purpose of operating and maintaining a medical clinic. H. 1705, would permit a **non-profit medical service corporation** to make payment for the professional services of dentists. S. 690, proposes the appointment of a commission to investigate and make recommendations relating to drafts of proposed legislation for expanding the opportunities for **medical education** in Connecticut for qualified residents.

Bill Enacted.—H. 546 has become Public Act. No. 104 of the Acts of 1951. It directs the State Department of Health to maintain **laboratories** and bureaus of administration, vital statistics, preventable diseases, sanitary engineering, maternal and child hygiene, public health nursing, public health instruction, venereal diseases, mental hygiene, and industrial hygiene.

Florida

Bills Enacted.—H. 302, was approved May 30, 1951. It provides regulations for the licensing of registered and practical **nurses**. H. 579, was approved May 29, 1951. It amends the law relating to the practice of medicine by requiring licentiates to **annually register** their licenses with the state board of health. H. 1084 became law without approval May 29, 1951. It authorizes the Board of County Commissioners of Orange County to provide for life, health, accident, **hospitalization**, and annuity insurance for its employees and their families. S. 71 became law without approval May 29, 1951. It directs the State of Florida to pay to the **first accredited and approved medical school** established within the state the sum of Three Thousand Dollars ($3,000) per year for each student admitted and enrolled in such institution. S. 326 became law without approval May 31, 1951. It provides that whenever the **dead body of a human being** shall remain unclaimed by any relative of the deceased person for a period of ten days after death, the board of county commissioners of the county within which such body may be shall have authority and power to give such body for any educational or research purpose to any medical school, dental school, school of nursing or other college or university, whether within or without the State of Florida. S. 817 was approved May 23, 1951. It establishes a Madison County Health and Hospital Board in Madison County to institute, maintain and operate a **public health program** for the citizens of the county and to own and operate a hospital therein. S. 841 became law without approval May 28, 1951. It authorizes the Board of Commissioners of Polk County to provide **group insurance** for its employees.

Illinois

Bill Introduced.—H. 1074, to amend the Civil Administrative Code, proposes the creation of five man committee composed of reputable chiropractors licensed to practice **chiropractic** in the state for the purpose of examining applicants for a chiropractic license to treat human ailments without the use of drugs or medicine and without operative surgery. H. 1161, proposes new regulations for the organization of **non-profit hospital service corporations**. S. 600, proposes to authorize the Department of Registration and Education to examine for and grant licenses to practice **physical therapy** which is defined as the treatment of any body or mental condition of any person by the use of the physical, chemical, and other properties of air, heat, light, water, electricity, massage, and active and passive exercise. The use of roentgen rays and radium for diagnostic and therapeutic purposes, and the use of electricity for surgical purposes, including cauterization, would not be authorized under the term "physical therapy." S. 613, proposes the enactment of a system of **temporary disability benefits**. S. 638, proposes to authorize the use of the **injunction** to enforce the provisions of the Chiropody Practice Act. S. 641, proposes to permit the use of the **injunction** to enforce the provisions of the Pharmacy Practice Act. S. 642, proposes to permit the use of the **injunction** to enforce the provisions of the Public Health Nursing Act. S. 647, proposes to permit the use of the **injunction** to enforce the provisions of the Medical Practice Act.

Bill Enacted.—S. J. R. 25 was adopted May 16, 1951. It requests an amendment of the **rules of the College of Medicine** of the University of Illinois in order to provide for the annual admittance of at least twenty students who will agree to practice in the rural areas of the state.

Massachusetts

Bill Introduced.—S. 665, proposes the creation of a commission to make an extensive investigation of all phases of the **employment security law**.

Nebraska

Bill Enacted.—Legislative Bill 530, was approved May 5, 1951. It relates to the commitment of persons to state institutions by providing that the petition accompanying the commitment must be accompanied by a certificate of a **legally qualified physician** with experience in the actual practice of his profession, certifying that he has personally examined the person to whom the application relates and that in his opinion the person is a feeble-minded person and a proper subject for commitment to the institution.

New Hampshire

Bills Enacted.—H. 263 has become Chapter 125 of the Laws of 1951. It makes it unlawful for an employer to require any employee or applicant for employment to pay the **cost of a medical examination** or the cost of furnishing any records required by the employer as a condition of employment. H. 404 has become Chapter 127 of the Laws of 1951. It amends the law relating to the practice of **nursing** by reducing the age requirement from 21 to 20 years.

Ohio

Bill Enacted.—S. 73 was approved May 11, 1951. It relates to the isolation and quarantine of persons exposed to and suffering from **communicable diseases**.

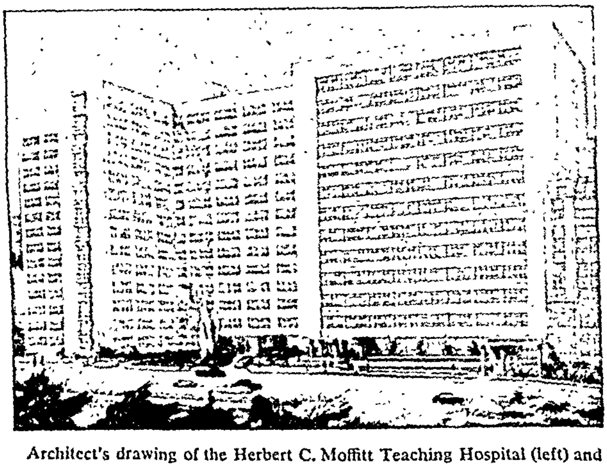
The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

MEDICAL NEWS

CALIFORNIA

Award in Psychiatry.—At the 1951 meeting of the American Psychiatric Association Dr. Jurgen Ruesch, associate professor of psychiatry at the University of California School of Medicine, and his associates at the Langley Porter Clinic, Robert E. Harris, Ph.D., Carole Christiansen, M.A., Martin B. Loeb, B.A., Sally Dewees, M.S., and Dr. Annemarie Jacobson, were honored by receiving the Hofheimer Award for research in psychiatry. The prize was awarded for a sociopsychological study of duodenal ulcer. The results of the inquiry were published in book form by the University of California Press in 1948.

University Medical Center.—The nucleus of a medical center, which will help bring California's medical education and research facilities more in line with the state's population growth, is under construction by the University of California at San Francisco. The new units of the medical center will cost about $22,630,000. The state legislature has appropriated $20,730,000 for the present program. Integrated in the state-financed structures will be quarters for the university's Cancer Research Institute, financed by a one million dollar contribution from the U. S. Public Health Service, and an area for research in ophthalmology, financed by a gift of $65,000 from Mr. and Mrs. Berthold Guggenhime of San Francisco. In addition, the U. S. Atomic Energy Commission is financing a $535,000 radiological laboratory. The two major units under construction are the 500-bed Herbert C. Moffitt Teaching Hospital and the Medical Sciences Building. These 14-floor units, accounting for $20,445,000 of the total cost, actually are planned as a single coordinated structure. Work is in progress on the teaching hospital and on two sections of the Medical Sciences Building. Completion of the hospital and the larger section of the sciences building is scheduled for the spring of 1953, when it will be possible to raze the dental-pharmacy building, which dates back to before the turn of the century, and undertake completion of the Medical Sciences Building. Remodeling of two buildings adjacent to the Medical Center for use in research on arthritis and corticotrophin (ACTH) will be done at a cost of $100,000. The radiological laboratory will be completed in a few weeks. For the first time since the earthquake and fire of 1906, the school of medicine will be unified. The new facilities will bring under one roof the school of medicine, the college of dentistry, the college of pharmacy, and the school of nursing.



Architect's drawing of the Herbert C. Moffitt Teaching Hospital (left) and the Medical Sciences Building (right), a single coordinate structure of the University of California Medical Center.

COLORADO

University Appointment.—Wilhelm Richard Frisell, instructor in physiological chemistry at Johns Hopkins University School of Medicine, Baltimore, has been appointed assistant professor of biochemistry at the University of Colorado School of Medicine, effective July 1.

Alumni Honor Veterans of Faculty.—Nine faculty members of the University of Colorado School of Medicine, Denver, were presented special medallions in recognition of 25 years of service at the annual alumni banquet June 2. The service recognition, established by the alumni last year, went to two members of the regular faculty and seven members of the clinical faculty: Dr. William C. Black, associate professor of pathology, and Dr. William B. Draper, professor of physiology and pharmacology, both members of the regular faculty; Dr. Wilford W. Barber, assistant clinical professor of pediatrics, Dr. Hamilton I. Barnard and Dr. J. Frederic Prinzing, both associate clinical professors of surgery, Dr. Harry J. Corper and Dr. Harry Gauss, both associate clinical professors of medicine, Dr. Lyman W. Mason, clinical professor of obstetrics and gynecology, and Dr. John I. Zarit, assistant clinical professor of medicine.

ILLINOIS

Hospitals to Care for Poliomyelitis Patients.—Facilities of 128 Illinois hospitals have been pledged for diagnosis or treatment of poliomyelitis patients this summer, Dr. Roland R. Cross, state director of public health, announced June 8. This is a culmination of years of effort on the part of public health agencies to enlist the participation of administrators of general hospitals in admitting poliomyelitis patients, he said. The committee has conducted a series of district meetings to inform hospital personnel in methods of caring for poliomyelitis patients. Of the 128 hospitals pledging help, 66 will provide diagnostic facilities only; 34 will provide diagnosis and treatment; 12 will give diagnosis, treatment, and rehabilitation care, and 16 will provide convalescent and rehabilitation care. Names of the hospitals are available through the Illinois State Department of Health, Springfield.

Chicago

Grants for Research.—The University of Illinois College of Medicine has been awarded the following grants in support of research investigations: $7,000 (renewal) by the Lakeland Foundation for the study of a cancer diagnostic test; $1,000 from Abbott Laboratories for an investigation concerning the effect of amines on high blood pressure in experimental cases, and $1,000 from the E. & J. Manufacturing Company of Glendale, Calif., in support of research studies on resuscitation. This investigative study on resuscitation is also supported by the American Red Cross and the American Medical Association.

Two New University of Chicago Hospitals.—Two new hospitals are to be added to the University of Chicago's Medical Research Center at a cost of over 4½ million dollars. The Charles Gilman Smith Hospital for research in and treatment of contagious and heart diseases will have six floors and 75 beds. The second hospital, to be the west wing of the clinics group, will be for research in orthopedics and in chronic diseases. This seven-story west wing will have 92 beds on three floors, including a special 20-bed unit for tuberculosis patients. The Charles Gilman Smith Hospital is named for a distinguished early Chicago physician, whose widow in 1926 left $285,000 to the university for a contagious diseases hospital. The fund has grown to $574,000. The U. S. Public Health Service made a grant of $485,000 through the National Heart Institute, which will provide for three floors for cardiac research. Hill-Burton funds are also being used to construct the hospitals. The 167 beds of the two buildings will bring the university's clinical facilities to 709 beds.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

MASSACHUSETTS

Harvard Alumni Day.—Some 500 doctors gathered in Boston May 25 for Harvard Medical School Alumni Day. The all-day meeting featured medical papers by members of the Harvard faculty and reunion dinners for various classes. The day began with morning visits to operations and hospital rounds at some of the teaching hospitals associated with the school. A medical symposium included talks by Drs. James H. Means, Herrman L. Blumgart, George W. Thorn, Derek E. Denny-Brown, George B. Wislocki, and Samuel A. Levine. A surgical symposium included talks by Drs. Edward D. Churchill, Merrill C. Sosman, Francis D. Moore, Grantley W. Taylor, Sidney Farber, and John Homans.

Industrial Hygiene Laboratory.—The occupational medical service at the Massachusetts Institute of Technology opened its new industrial hygiene laboratory in the Homberg Infirmary May 8. The new facilities will make possible extensive testing services for all departments and laboratories to assist in developing the most beneficial environment possible for all kinds of scientific and professional work. The problem of analysis and correction of hazards due to radioactive or toxic chemicals or dusts, as well as the more subtle problems of unusual occupational stress, noise, and lighting, are included in the assignment. The occupational medical service will act principally in an advisory capacity. All illnesses of institute personnel will be screened by the members of the occupational medical service and those that appear to be job-related will be carefully investigated. The service will work closely with the institute's safety committee, of which Prof. Edward R. Schwarz is chairman. In addition to special departmental seminars, a course in occupational hygiene is planned in the M. I. T. graduate school. The course is designed to provide background for research administrators and industrial hygiene consultants. Dr. Harriet L. Hardy, assistant medical director, will be in charge of the service.

MICHIGAN

Personals.—Dr. Osborne A. Brines, professor of pathology at Wayne University College of Medicine, Detroit, has been elected vice president of the International Society of Clinical Pathology. Dr. Brines will attend the International Congress of Clinical Pathology in London, England, July 17-20 as official delegate of the American Society of Clinical Pathologists.

McGregor Fund Grants.—Two grants totaling $96,378 have been awarded Wayne University College of Medicine, Detroit, by the McGregor Fund. The first grant will cover the salary of a full-time professor and chairman of the department of psychiatry in Wayne's college of medicine for a five-year period ending June 30, 1956. The professor's original appointment was made possible by a similar grant in 1946. The second grant provides $6,378 for two residency fellowship awards for the fiscal year commencing in July.

MISSOURI

New Hospital Psychiatric Unit.—Menorah Hospital, Kansas City, has announced the opening of its new psychiatric unit that has accommodations for the care of 32 patients. The physical facilities will make possible all modern methods of psychiatric treatment, including physical therapy, occupational therapy, and electric and insulin shock therapy, as part of an integrated approach to treatment. The staff includes a psychologist, psychiatric social worker, and an occupational therapist. Dr. Morton Jacobs is director of the psychiatric unit and chairman of the department of psychiatry.

MONTANA

Cancer Lecture Series.—The cancer committee of the Montana Medical Association, in cooperation with the state board of health, has presented a series of lectures on cancer throughout the state. They were held, beginning June 4, at Miles City, Billings, Great Falls, Kalispell, Butte, and Bozeman. The speakers at each of these lectures were Dr. Randolph H. Hoge, professor of gynecology, and Dr. Arthur B. Gathright Jr., assistant professor of medicine and assistant director, onocology department, Medical College of Virginia, Richmond.

NEW YORK

New Society of Radiologists.—Last fall the Northeastern New York Radiological Society was established in Albany with 34 charter members. Meetings are held four times a year, usually in Albany, but one meeting a year (in June) is to be held in another part of the state. The officers for the current year are Dr. Edward DeFeo, Brooklyn, president; Dr. Orville L. Henderson, Troy, vice president, and Dr. John F. Roach, Londonville, secretary-treasurer.

Westchester County Society Awarded Citation.—The 1951 Cancer Crusade Citation has been awarded to the cancer committee of the Medical Society of the County of Westchester by the American Cancer Society. The committee was cited for its broad school program employing a special cancer instruction text, "Youth Looks at Cancer," which was placed in the county high schools in 1940. The book has since been distributed nationally by the national society.

Department Head Appointed.—Dr. Clair E. Folsome, Plainfield, N. J., has been appointed head of the department of obstetrics and gynaecology at the New York Medical College, Flower and Fifth Avenue Hospitals. Dr. Folsome was formerly executive director of the National Committee on Maternal Health and executive director of research for the Ortho Research Foundation from 1944 to 1951. He will attend the French Congress of Gynecology in Paris as representative of the New York Medical College, Flower and Fifth Avenue Hospitals.

Personals.—Dr. Connie Myers Guion, chief of the medical clinic of New York Hospital-Cornell University Medical Center and consulting physician on the staff, received the award of merit of the Alumni Association of Cornell University Medical College April 21.——Dr. Sidney V. Haas, who recently completed his 50th year of service in the medical profession, was honored at a reception and buffet supper in Atlantic City, N. J., June 12 by the pediatric staff of the New York Polyclinic Medical School and Hospital. The occasion noted the publication of Dr. Haas' monograph, "The Management of Celiac Disease."——Dr. Julius Lempert, head of the Lempert Institute of Otology, New York, has returned from Stockholm, Sweden, where on May 30 he received the honorary degree of doctor of medicine from the Karolinska Institute in appreciation of his contribution to the treatment of deafness in otosclerosis.——As chairman of international relations of the American Society of Clinical Pathologists, Dr. Theodore J. Curphey will attend the International Congress of Clinical Pathology in London July 16 to 20. He has been invited to lecture at the monthly meeting of the Medico-Legal Society of Great Britain in London July 25. Dr. Curphey, chief medical examiner for Nassau County, will speak on "A Comparison of the Coroner and the Medical Examiner Systems in the United States."——Dr. Isador S. Ravdin, John Rea Barton professor of surgery at the University of Pennsylvania School of Medicine, Philadelphia, received an honorary degree of doctor of humane letters from the New York Medical College at graduation exercises June 6. He addressed the graduating class of the college, advocating the return to the old "family doctor" relations.

New York City

Dr. Lovejoy Receives Blackwell Medal.—Dr. Esther Pohl Lovejoy, New York, is the recipient of the 1951 Elizabeth Blackwell medal given annually by the American Medical Women's Association for "outstanding contribution to the advancement of women in medicine." The award was presented at the 36th annual meeting of the association in Atlantic City, June 8-10. Dr. Lovejoy became head of the board of health of Portland, Ore., in 1907. In 1917 she went to France to serve with the American Red Cross, returning to this country in 1919 to become the executive chairman of the American Women's Hospitals, a post which she has continued to fill. Dr. Lovejoy served as president of the Medical Women's International Association from 1919 to 1924 and as president of the American Medical Women's Association from 1932 to 1933. In recognition of her splendid work in foreign countries Dr. Lovejoy has been given the Gold Cross of the Legion of Honor (France); the Gold Cross of the Redeemer; the Gold Cross of King George I and the War

Cross, (Greece); the Gold Cross of the Holy Sepulcher (Jerusalem), and the Gold Cross of Saint Sava (Yugoslavia). She now is working on a revision of her book, "Certain Samaritans," a history of women in medicine.

Library Services.—The New York Academy of Medicine Library, one of the largest American medical collections, has on its shelves most of the important literature of medicine and much of the allied sciences in some 272,000 volumes. These resources are available to the general public as well as to the academy's own fellows and holders of library cards. Besides complete runs of the standard medical journals in English and foreign languages, and in addition to the usual medical textbooks and monographs, the library is particularly strong in foreign monographs, textbooks, encyclopedias, and systems; medical biography; medical history; medical Americana, and portraits of physicians. It has good files of health reports, government publications, medical school announcements, hospital reports, data on morbidity, and vital statistics. In fields related to medicine it has excellent collections on dentistry, chemistry, psychology and psychoanalysis, foods and cookery, as well as representative material in nursing, sociology, anthropology, physics, mathematics, botany, zoology, philosophy, pharmacy, and veterinary medicine. Out-of-town nonprofit libraries may also use its facilities. Books may be taken for two weeks and renewed for two additional two-week periods. Out-of-town fellows and subscribers may have material sent to them under the "interlibrary loan code," transportation to be paid by the borrower.

Besides its regular reference services the library has facilities for reproduction of the library's material in photostat, microfilm, photographs, and lantern slides. Bibliographies are compiled or checked from original sources, and abstracts and translations are made from French, German, or Spanish. Names of translators will be supplied for other languages. The library also edits manuscripts for publication. The rare book and history rooms are open to fellows and the general public Monday through Friday, 9 a. m. to 5 p. m., and closed to everyone evenings, Saturdays, and holidays. The rare books themselves do not circulate, but many of the reference works, histories, and bibliographies may be borrowed.

NORTH CAROLINA

Southern Pediatric Seminar.—This annual seminar will be held at Saluda July 16-28 and will be followed by a graduate summer course in obstetrics and gynecology July 30-Aug. 4. The seminar is especially for general practitioners. The registration fee is $25 for the graduate course and $40 for the pediatric course or $50 for the combined courses. Advance registration is necessary.

Dr. Womack to Head Department of Surgery.—Dr. Nathan A. Womack, head of the department of surgery at the University of Iowa, Iowa City, has accepted the position as professor and head of the department of surgery at the University of North Carolina School of Medicine and will take up his duties in Chapel Hill in the late summer. Before heading the department of surgery at the University of Iowa, he was professor of clinical surgery at Washington University School of Medicine, St. Louis.

OKLAHOMA

Dr. Howard Joins Institute Staff.—Dr. R. Palmer Howard, formerly demonstrator in medicine at McGill University Faculty of Medicine, Montreal, Canada, also in charge of the endocrine clinic and laboratory of the Montreal General Hospital, has been appointed a member of the staff of the Oklahoma Medical Research Institute and Hospital, Oklahoma City. The institute and hospital has an academic affiliation with the University of Oklahoma School of Medicine. Dr. Howard will continue his research in endocrinology. He will be associated with Dr. Edward C. Reifenstein Jr., director of the institute and head of the section on metabolic alterations, in a study of metabolic bone diseases.

Study of Geriatric Problems.—An expanding program of medical research is underway at the Oklahoma Medical Research Foundation in Oklahoma City, with initial studies in the field of geriatrics, primarily projects dealing with cancer, heart disease, arthritis, and metabolic bone ailments. Completion of a 22-bed modern hospital to make clinical material available to the research staff is expected by July. Located immediately adjacent to the foundation's principal structure, the Research Hospital is being built at a cost of $225,000. Dr. Leonard P. Eliel, research scientist now with the Sloan-Kettering Institute of New York, will join the foundation in July to conduct studies dealing with fluid balance as it relates to the use of cortisone and corticotrophin (ACTH). Dr. Eliel will be the sixth permanent member of the foundation research staff.

PENNSYLVANIA

Society News.—The Pennsylvania Academy of Ophthalmology and Otolaryngology held its annual meeting May 3-6 in Wernersville. In addition to formal presentations, four roundtable discussions and 12 study clubs were held. The meeting was attended by specialists from all parts of the state and from surrounding states. Among the officers of the organization for the ensuing year are: Dr. Matthew S. Ersner, Philadelphia, president; Dr. Samuel T. Buckman, Wilkes-Barre, president-elect; Dr. Daniel S. DeStio, Pittsburgh, secretary, and Dr. Bruce A. Grove, York, treasurer.——The Pennsylvania Radiological Society May 18-20 elected officers for the coming year. Dr. Maurice Goldsmith was chosen president and Dr. William V. Dzurek, Pottsville, president-elect.

Philadelphia

Thirty-Nine New Women Doctors.—Commencement at the Woman's Medical College, now in its 101st year, was held on June 15, when 39 women received the degree of doctor of medicine. The honorary degree of doctor of science was conferred on Dr. Helen B. Taussig, associate professor of pediatrics, Johns Hopkins University School of Medicine, Baltimore, and on Mr. John M. Russell, vice president and executive director of the John and Mary Markle Foundation, who gave the commencement address. His subect was "On Being Dissatisfied." Dr. Louise Pearce, Belle Mead, N. J., presided at the exercises. Dean Marion Fay presented the candidates for their degrees. Dr. L. Kraeer Ferguson, professor of surgery, presented the hoods for investiture and the Hippocratic Oath was administered by Dr. Mollie A. Geiss, professor of pathology. Another highlight of the commencement was the awarding of medals to 10 women who graduated 50 years ago by the alumnae association president, Dr. Mary R. Curcio. Four were present in person to receive awards: Dr. Hannah Frances Bartlett Tyson, Leonia, N. J., Dr. Elizabeth Comstock, Arcadia, Wis., Dr. Mary Riggs Noble, Bowmansdale, Pa., and Dr. Elsie Treichler-Reedy of Philadelphia. The following prizes were awarded: the President's Prize for the highest average for four years to Mia Parsonnet; the Dean's Prize for the highest average for the fourth year to Elsie M. Tytla; the Professor of Surgery Prize for the highest average in general surgery to Edith J. Miller; the Department of Medicine Prize for the highest average in medicine to Jean Stuart Vogt; the Elise L'Esperance Prize of $100 "for work in the cancer field by graduate or undergraduate students," awarded to Edithe J. Miller, with honorable mention to Fae M. Adams, and the Oncology Award to Renate Leo.

SOUTH DAKOTA

Medical Students to Serve Clerkships.—Thirty-one second-year students at the University of South Dakota School of Medicine, Vermillion, will serve one month as clinical clerks with doctors in South Dakota starting June 25. This is the third year these clerkships have been offered sophomore students. The program has met with success. Physicians in all parts of the state will act as preceptors. The clerkships will end in time for the students to prepare for entering four-year schools of medicine in the fall for their junior and senior years.

TEXAS

New Fellowships.—The Ferris and Florence Smith Foundation for Plastic Surgical Research, Grand Rapids, Mich., has established a fellowship at the University of Texas Medical Branch, Galveston, for work in the Tissue Culture Laboratory under the direction of Charles M. Pomerat, Ph.D. The fellowship is currently being held by Dr. Jorge Gonzalez Ramirez from the laboratory of Dr. I. Costero of Mexico City.

Postgraduate Medical Assembly.—The annual meeting of the Postgraduate Medical Assembly of South Texas will be held July 23-25 at the Shamrock Hotel in Houston. Summer rates will prevail. Medical motion pictures and scientific and technical exhibits will be shown. Twenty-three out-of-state guest speakers are on the program. Those in the medical section include: Drs. Thaddeus S. Danowski, Pittsburgh; Garfield G. Duncan, Philadelphia; Cyrus C. Sturgis, Ann Arbor, Mich.; Robert B. Lawson, Winston-Salem, N. C.; Alan G. Cazort, Little Rock, Ark.; Lealdes M. Eaton, Rochester, Minn.; Earl D. Osborne, Buffalo, and William B. Wartman, Chicago. Those in the surgical section include: Drs. Harvey S. Allen, and M. Edward Davis, Chicago; Alvin J. Ingram, Memphis; John H. Mulholland, New York; Morris J. Nicholson, Boston; William P. Longmire Jr., Los Angeles; George C. Prather, Boston, and Herbert E. Schmitz, Chicago. Those in the EENT section include: Mr. J. C. Copeland, Chicago; Dr. Brittain F. Payne, Dr. Samuel Fomon, and Dr. William W. Morrison, New York.

UTAH

University News.—The University of Utah, Salt Lake City, is negotiating with the Atomic Energy Commission for construction of radiobiology laboratories costing approximately $100,000 in the new medical center. A diversified program of research on the effects of radiation as it is of particular concern to the AEC will be carried out in these laboratories.

Dr. Mark Nickerson, Ph.D., is leaving the research faculty of the University of Utah College of Medicine to assume an appointment as associate professor of pharmacology at the University of Michigan, Ann Arbor. Dr. Hyrum L. Marshall, formerly professor of public health and preventive medicine and acting dean until the arrival of Dean Bowers last fall, has been appointed medical director for the trust territory islands of the Pacific, with headquarters in Hawaii.

VERMONT

Council to be Guests of Bar Association.—The board of managers of the Vermont Bar Association has invited the Council of the Vermont State Medical Society to meet with them on June 24 at 12:30 p. m. at the Long Trail Lodge, Cherburne Pass. Matters of mutual interest will be discussed.

VIRGINIA

Cancer Award.—Dr. George Cooper Jr., associate professor of roentgenology, University of Virginia, was awarded the American Cancer Society's 1951 medal for Virginia May 18 in recognition of his contributions to the control of cancer. Dr. Cooper is medical and scientific director and a member of the board of trustees of the Virginia Division, American Cancer Society, and chairman of the cancer committee of the Medical Society of Virginia. Last year's American Cancer Society Award for Virginia was presented to Dr. Edwin P. Lehman, professor of surgery and gynecology at the University of Virginia.

Dr. Fitz-Hugh to Succeed Dr. Woodward.—Dr. Fletcher D. Woodward, professor of otolaryngology at the University of Virginia, retires as chairman of the school of otolaryngology July 1 after 26 years of service but will remain active in the teaching and clinical programs. Dr. G. Slaughter Fitz-Hugh, clinical assistant professor of otolaryngology, will succeed Dr. Woodward as chairman of the department. Dr. Woodward is currently directing the organization of the new Virginia Hearing Foundation at the university. His co-director is James M. Mullendore, director of the Speech and Hearing Center. The foundation will offer a training center for specialists in diseases of the ear and will provide a complete diagnostic clinic. Plans include a full-time traveling clinic to conduct hearing tests.

WASHINGTON

Foundation Appointments.—Pinel Foundation, Inc., a Seattle nonprofit organization for psychiatric treatment, training, and research, announces the appointment of the following doctors to augment its staff: Morton E. Bassan, Norman Chivers, Charles Gable, Gert Heilbrunn, and Charles A. Mangham.

ALASKA

Three Floating Clinics.—Three floating clinics of the Alaska Department of Health are again taking health programs to remote communities where other medical facilities are unavailable. The barge *M/V Yukon Health* that wintered in the Yukon River ice at Holy Cross will work down to the mouth of the river this season. Dr. Catherine Nelson, Seattle, is in charge of the medical work aboard. The staff also includes a dentist and a dental technician. The *M/V Health*, which has been in operation for the past two years, was completely overhauled in Seattle and arrived in Juneau in mid-May en route to northern waters. Its base has been changed from Kodiak to Seward, and its work for the season is scheduled between Egegik and the mouth of the Yukon River. Dr. Hazel I. Blair, Juneau, is physician in charge. The *M/S Hygiene* will operate this year in southeastern Alaska waters under the direction of Dr. Lawrence Rose.

GENERAL

Society Election.—At the annual meeting of the American Association of Genito-Urinary Surgeons held May 16-18 the following officers were elected: Dr. Charles C. Higgins, Cleveland, president; Dr. Albert J. Scholl, Los Angeles, vice president, and Dr. Norris J. Heckel, Chicago, secretary-treasurer.

Personal.—Dr. Theodore K. Klumpp, president of Winthrop-Stearns, Inc., New York, has been elected to the board of directors of the U. S. Committee of the World Medical Association. The board of directors has been increased to 40 members.

Section Meeting of Urological Association.—The western section of the American Urological Association will hold its annual meeting in Sun Valley June 25-28. There will be special lectures by Dr. George F. Cahill, New York, and Dr. Elmer Hess, Erie, Pa., president of the American Urological Association. Dr. T. Leon Howard, Denver, will be in charge of the roundtable session Tuesday afternoon.

WHO Aids Earthquake Victims.—Medical supplies were flown May 16 to El Salvador from Washington, D. C., by the World Health Organization's regional office for victims of the recent earthquakes that struck several towns and injured thousands of persons. The Pan American Sanitary Bureau sent 4,000 capsules of chloromycetin, 4,000 capsules of aureomycin, and 225 pounds of chlorinated lime to treat victims and to purify water as a preventive measure against epidemics.

Hospital Library Meeting.—The hospital libraries division of the American Library Association will meet at the Palmer House and Stevens Hotel in Chicago July 8-14. At the luncheon meeting July 11 Dr. Herman N. Bundesen, president of the board of health, Chicago, will speak on "Civil Defense Planning in Chicago Hospitals." Tours of the libraries of the Hines Veterans Administration Hospital and the Bacon Library of the American Hospital Association are included in the program.

Serum Hepatitis in Portland and Boston.—It has been reported to the U. S. Public Health Service that 14 cases of serum hepatitis occurred in Portland, Maine, during the past 10 months in persons who had received thrombin of human origin. Another group of persons treated with the same product was found in Boston. The incubation periods in the Portland group varied from 90 to 105 days. Thrombin of human origin has been recalled from all distributing centers and consignees.

Sugar Research Foundation Grants.—This foundation has given the Harvard School of Public Health a grant-in-aid for the study of sugar as the base for emergency rations for civilian populations. Six other laboratories sharing in the $146,835 appropriated for research this year by the foundation are at Emory University, Ga.; University of Pennsylvania School of Medicine and Jefferson Medical College, Philadelphia; Boston City Hospital; California Foods Research Institute, and Belmont Chemical Sales Development Co., Chicago.

Muscular Dystrophy Foundation Committee.—Dr. Dereck E. Denny-Brown, James Jackson Putnam professor of neurology at Harvard Medical School, Boston, has accepted chairmanship of the committee on research of the National Muscular

Dystrophy Foundation, Inc. Other science investigators who have been named to this board are Dr. Ralph W. Gerard, Chicago; Dr. Samuel J. Morgulis, New York; Dr. Hebbel E. Hoff, Houston, Texas, and Dr. Johannes M. Nielsen, Los Angeles. The foundation welcomes requests for grants for research in dystrophy, and the new committee will evaluate such requests.

***Foundation* Awards Cancer Funds.**—The Black-Stevenson Cancer Foundation has awarded about $750,000 each to the Presbyterian Hospital in Newark, N. J., and the Memorial Center for Cancer and Allied Diseases in New York. The institutions were selected from among more than 5,000 that had applied for donations during the last five years. The grants were made as 20-year endowments, with the institutions permitted to expend not more than 10 per cent of the principal each year if they elect to do so. Each hospital will set up separate funds to be called the Black-Stevenson Memorial Fund, which will be applied "for the care and treatment, preventive and remedial, of needy persons afflicted or threatened with cancer."

***International Pathology* Congress.**—The International Congress of Clinical Pathology will be held in London July 16 to 20, with offices to be housed in the University College on Gower St. The congress is under the auspices of the International Society of Clinical Pathology, of which Dr. S. C. Dyke, Wolverhampton, England, is president. Sir Lionel Whitby, Cambridge, will preside. The scientific program will begin July 17 with daily sessions on microbiology, morbid anatomy, chemical pathology, and hematology. The registration fee is 2£ ($5.60). Inquiries should be addressed to the secretary-treasurer, Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London, W.9.

U. S. Companies to Produce Drugs in South America.—Fontoura-Wyeth, S. A., Brazil, an affiliate of Wyeth Incorporated, will construct a five-story laboratory in Sao Paulo, Brazil, for production of various penicillin salts and the conversion of penicillin into various forms suitable for medical and veterinary use. The laboratory will cost in excess of 2 million dollars.

The Armour Laboratories of Chicago will shortly open a new four-story plant in Buenos Aires, Argentina, to tap new sources of raw material to relieve a potential shortage of insulin and increase supplies of ACTH and trypsin. The plant's production will go first to supply the needs of Argentina. The Argentine government has agreed to permit the export of the surplus, about 80 per cent.

Space Medicine Society.—This society was organized by doctors attending the recent meeting of the Aero Medical Association in Denver. Space medicine is a new branch of medical science developed in the last few years as jet planes and rocket-powered aircraft have approached the regions outside the earth's atmosphere. Aviators must deal in those regions with such unfamiliar problems as bombardment of their aircraft by cosmic rays and gravity-free flight at high speeds when their bodies will have no weight. At this meeting Col. Paul A. Campbell, director of research at the Air Force School of Aviation Medicine, Randolph Field, Texas, was chosen chairman of the society, and Dr. Hubertus Strughold, head of the department of space medicine at this school, was named secretary. Capt. Ashton Graybeil, director of research, Naval Aviation Medical School, Pensacola, Fla., was appointed chairman of the membership committee.

Pan American Sanitary Bureau Budget.—A budget of $1,943,681 for the use of the Pan American Sanitary Bureau during 1952 has been approved by the executive committee, which ended its 13th meeting May 1 in Washington, D. C. The budget will be presented for final action to the organization's directing council meeting in Washington next autumn.

In view of the delays in the receipt of contributions from some of the 21 member governments of the organization hampering the public health programs undertaken by the bureau, the executive committee resolved to approve the procedure whereby the director of the bureau sends monthly notifications to the health authorities of the members, as well as to the ministries of foreign affairs, through the Organization of American States as to the status of the bureau's quota contributions. The 1952 budget will permit under limits the continuation of the bureau's activities. In the light of the present financial situation, it was decided not to open a proposed field office in the southern part of South America. However, the field offices in Lima, Peru, and Rio de Janeiro, Brazil, will be enlarged to take care of the field work in the southern areas of the continent. The field offices in Guatemala and El Paso, Texas, will continue, and a new field office is planned for Mexico City.

Multiple Sclerosis in New Orleans and Winnipeg.—A comparative investigation of all known multiple sclerosis cases in New Orleans and Winnipeg, Manitoba, Canada, has been launched as a result of grants made by the National Multiple Sclerosis Society, New York, and the Ministry of Health and Welfare of Canada. The society's grant of $4,050 has been awarded to Dr. Robert G. Heath of the Tulane University of Louisiana School of Medicine, New Orleans, while a grant of $7,990 supporting the Winnipeg study has been made by the Ministry of Health and Welfare of Canada to Dr. Maxwell Bowman, University of Manitoba Faculty of Medicine. The investigation will be based on the results of statistical surveys already conducted by the universities for the National Multiple Sclerosis Society, a part of a national study under the direction of Dr. Leonard T. Kurland, recently appointed epidemiologist of the National Institute of Mental Health, United States Public Health Service. The national study aims to determine the prevalence of multiple sclerosis as well as the effect of climate and other factors on its incidence and course. Studies completed show that multiple sclerosis is three and one-half times as frequent in Winnipeg as in New Orleans. Although geographic differences in prevalence have been cited previously, the new project is the first intensive investigation that aims primarily to ascertain why such a difference exists. This investigation represents the 13th research project supported by the National Multiple Sclerosis Society in little more than four years of existence.

Fellowships in Child Psychiatry.—These fellowships offering specialized training in child guidance clinic psychiatry are still available for September, 1951, in a number of member clinics of the American Association of Psychiatric Clinics for Children. At the completion of training, openings are available in all parts of the country. Fellows receive instructions and supervision in diagnostic and therapeutic techniques with children, in the utilization of the integrated services of the psychiatric clinic team, and in the coordination of clinic effort with the work of health, welfare, and educational agencies in the community. Most of the clinics plan for a two-year training period, although a few still accept one-year fellows, and a few others will consider giving one-year training in special cases. Fellowship stipends are usually $3,000 for the first year and $3,600 for the second. Funds come from the U. S. Public Health Service, from the clinics doing the training, and in some cases from clinics or communities paying for the training of psychiatrists promising to work in these communities. The office of the American Association of Psychiatric Clinics for Children gives information and assistance to applicants. Application may be made through this office or directly to the individual clinics, but in all cases acceptance is by the training centers. In practically all instances the work at these clinics has been credited by the American Board of Psychiatry and Neurology for a third year of training and for an additional year of experience. For information address Miss Mary C. Bentley, Executive Assistant, American Association of Psychiatric Clinics for Children, 1790 Broadway, Room 916, New York 19.

CORRECTION

Intravenous Use of Alcohol.—In The Jounal, May 5, 1951, page 22, right hand column, 24th line from the bottom of the page, the sentence beginning "One hundred cubic centimeters of 5 per cent alcohol" should read "One thousand cubic centimeters of 5 per cent alcohol."

MEETINGS

American Electroencephalographic Society, Hotel Claridge, Atlantic City, June 16-17. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Hearing Society, Palmer House, Chicago, June 29. Mrs. Frances E. Lee, 817 Fourteenth St. N.W., Washington 5, D. C., Secretary.

American Neurological Association, Atlantic City, June 18-20. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

American Orthopedic Association, The Greenbrier, White Sulphur Springs, W. Va., June 20-23. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

Great Falls Medical-Surgical Conference, Great Falls, Montana, June 25-26. Dr. William E. Sullens, Box 1066, Great Falls, Chairman.

Idaho State Medical Association, Sun Valley, June 17-20. Dr. Robert S. McKean, 305 Sun Building, Boise, Secretary.

Maine Medical Association, Poland Spring House, Poland Spring, June 17-19. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Medical Library Association, Denver, June 28-30. Miss Caroline Riechers, Rush Medical College Library, 1758 W. Harrison St., Chicago 12, Secretary.

Post Graduate Medical Assembly of South Texas, Shamrock Hotel, Houston, Texas, July 23-25. Mrs. W. H. Dahme, 229 Medical Arts Bldg., Houston, Executive Secretary.

Society of Biological Psychiatry, Claridge Hotel, Atlantic City, June 17. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles 17, Secretary.

West Virginia State Medical Association, The Greenbrier, White Sulphur Springs, July 19-21. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Executive Secretary.

INTERNATIONAL

European Congress on Rheumatism, Barcelona, Spain, Sept. 24-27. Dr. Gunnar Edströn, Lund, Sweden, Secretary.

General Practitioners Study Club International, Rome, Italy, Sept. 12-15. Dr. John O'Connell, 10300 Lackland Road, St. Louis 14, Mo., U. S. A., President.

International Anesthesia Research Society, London, England, Sept. 3-7. Mr. R. W. Cope, University College Hospital, London W.C.1, England.

International Association of Allergists, Zurich, Switzerland, Sept. 23-29. Prof. A. S. Grumbach, Hygiene Institut der Universitaet Zurich, Gloriastr. 32, Zurich, Switzerland.

International Congress of Anesthesiology, Nursing School of the Salpiettre, 47 Boul de l'Hospital, Paris, France, Sept. 20-22. 12 rue de Seine, Paris 6^e, France, Secretariat.

International Congress of Clinical Pathology, London, England, July 16-20. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W.9, England, Secretary.

International Congress of Gynecology, Maison de la Chimie, Centre Marcellin, Paris, France, June 23-29. Dr. Maurice Fabre, 1, rue Jules-Lefebvre, Paris 9, General Secretary.

International Congress on Industrial Medicine, Instituto Superior Técnico, Lisbon, Portugal, Sept. 9-15. Dr. Luis Guerreiro, Instituto Nacional do Trabalho e Previdência, Praça do Comercio, Lisbon, Secretary General.

International Congress on Mental Health, Mexico City, Mexico, Dec. 11-19.

International Congress of Military Medicine and Pharmacy, Paris, France, June 17-23. Physician General Dutrey, 8, bis, rue de Recollets, Paris 10, Secretary General.

International Gerontological Congress, Hotel Jefferson, St. Louis, Mo., U. S. A., Sept. 9-14. Dr. John E. Kirk, 5600 Arsenal Street, St. Louis 9, Mo., Chairman, Program Committee.

International Hospital Congress, Brussels, Belgium, July 15-21. Capt. J. E. Stone, 10 Old Jewry, London E.C., England, Secretary.

International Poliomyelitis Congress, Copenhagen, Denmark, Sept. 3-7. Prof. Dr. Niels Bohr, Statens Seruminstitut, 80 Amager Blvd., Copenhagen S., Denmark, President.

International Society of Surgery, Paris, France, Sept. 24-29. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, Secretary General.

International Society for the Welfare of Cripples, Fifth World Congress, Stockholm, Sweden, Sept. 9-14. Mr. Donald V. Wilson, 54 E. 64th St., New York 21, N. Y., U. S. A., Executive Director.

Pan Pacific Surgical Association Congress, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

Students' International Clinical Congress, Leyden, Utrecht, Groningen and Amsterdam, Holland, July 10-28. N. A. M. Bergstein, Oude Gracht 143 bis, Utrecht, Holland, Secretary General.

World Confederation for Physical Therapy, Copenhagen, Denmark, Sept. 7-8.

World Medical Association, Stockholm, Sweden, Sept. 15-21. Dr. Louis H. Bauer, 2 E. 103d St., New York 29, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: Montgomery, June 26-28. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Arizona:* *Examination.* Phoenix, July 17-19. *Reciprocity.* Phoenix, July 21. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

California: *Written.* San Francisco, June 25-28 and Aug. 20-23. *Oral.* San Francisco, June 23 and Los Angeles, August 18. *Oral and Clinical Examination for Foreign Medical School Graduates.* San Francisco, June 24 and Los Angeles, August 19. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

Colorado:* *Examination.* Denver, June 18-20. *Reciprocity.* Denver, July 10. Sec., Dr. George H. Gillen, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, July 10-11. Sec. to the Board, Dr. Creighton Barker, 160 St. Ronan St., Hartford. *Homeopathic.* Derby, July 11-12. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, July 10-12. *Reciprocity.* Dover, July 19. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

Florida:* *Examination.* Jacksonville, June 24-26. Sec., Dr. Homer L. Pearson, 701 DuPont Bldg., Miami.

Georgia: Atlanta, June. Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. John Y. Battenfield, Agana.

Hawaii: *Examination.* Honolulu, July 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Idaho: Boise, July 9-11. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

Illinois: Chicago, June 26-28. Supt. of Regis., Mr. Charles F. Kervin, Capitol Bldg., Springfield.

Maine: Augusta, July 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Massachusetts: *Examination.* Boston, July 10-13. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston 33.

Mississippi: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Jackson 113.

Nebraska: * June 1951. Director, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln.

Nevada:* Carson City, August 6. Sec., Dr. G. H. Ross, 112 North Curry St., Carson City.

New Hampshire: Concord, Sept. 12-13. Sec., Dr. John Samuel Wheeler, Room 107 State House, Concord.

New Mexico:* Santa Fe, Oct. 8-9. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

New York: Albany, Buffalo, New York and Syracuse, June 26-29. Sec., Dr. Jacob L. Lochner, Jr., 23 S. Pearl St., Albany 7.

North Dakota: Grand Forks, July 4-7. Sec., Dr. C. J. Glaspel, Grafton.

Oregon:* *Examination.* Portland, June 21-23. Special examination for physicians who have orders to report for military service about July 1. *Examination.* Portland, July 5-7. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland 4.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July 10-13. Acting Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: *Examination.* Santurce, Sept. 4. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* *Examination.* Providence, July 5-6. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Carolina: *Examination.* Columbia, June 25-27. *Reciprocity.* Columbia, April 2 and May 15. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota: Rapid City, July 17-18. Sec., Dr. Clarence E. Sherwood, 109 Center St., West, Madison.

Utah: Salt Lake City, July 11-13. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Washington:* Seattle, July 16-18. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

West Virginia: Charleston, July 9-11. Sec., Dr. N. H. Dyer, Capitol Bldg., Charleston 5.

Wisconsin:* Milwaukee, July 10-12. Sec., Dr. C. A. Dawson, River Falls.

Wyoming: *Examination.* Cheyenne, June 4. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Juneau, August. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

District of Columbia: *Examination.* Washington, Oct. 22-23. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Iowa: *Examination.* Des Moines, July 10. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Nevada: *Examination.* Reno, July 3. Sec., Mr. Frank Robinson, University of Nevada, Reno.

Oklahoma: Oklahoma City, Sept. 14. Sec., Dr. Frank C. Gallaher, 813 Braniff Bldg., Portland 4.

Oregon: *Examination.* Portland, Sept. 8 and Dec. 1. Sec., Dr. Charles D. Byrne, State Board of Higher Education, University of Oregon, Eugene.

Tennessee: *Examination.* Memphis, July 5-6. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

Texas: *Examination.* Austin, October. Chief Clerk, Mr. B. H. Kirk, 306 Nalle Bldg., Austin.

Washington: *Examination.* Seattle, July 11-12. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

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* Basic Science Certificate required.

DEATHS

Crowell, Bowman Corning ⊕ Chicago; born in Yarmouth, N. S., Canada, Jan. 10, 1879; McGill University Faculty of Medicine, Montreal, 1904; instructor in pathology, University and Bellevue Hospital Medical College, New York, 1907-1911; associate professor of pathology and bacteriology at the University of the Philippines College of Medicine and Surgery and chief of the department, 1912-1914; professor and chief of department, 1914-1918, and director, 1916-1918, Graduate School of Tropical Medicine and Public Health; professor of pathology at the Medical College of the State of South Carolina, Charleston, 1922-1923, and of Jefferson Medical College, Philadelphia, 1923-1926; lecturer in pathology at Northwestern University Medical School, 1927-1949; pathologist, Bureau of Science in Manila, P. I., 1911-1915; chief of service, department of pathology, Oswaldo Cruz Institute, Rio de Janeiro, Brazil, 1918-1922; member of the board of directors of the American Cancer Society, which on Oct. 28, 1949, awarded him its first annual medal "in recognition of his outstanding contributions to the control of cancer"; member of the board of directors of the Gorgas Memorial Institute and the National Malaria Commission; president of the Philippine Island Medical Association in 1918; member of the International Association of Medical Museums, American Association for the Advancement of Science, Chicago Pathological Society, American Association for Cancer Research, Institute of Medicine of Chicago, and Chicago Academy of Sciences; honorary member, the Brazilian Academy of Medicine and the American Society of Clinical Pathologists; from 1923 to 1926 pathologist and director of laboratories, Jefferson Hospital, and visiting pathologist at Philadelphia General Hospital, both in Philadelphia; since retirement on Nov. 15, 1949, served as associate director emeritus at the American College of Surgeons, where he was associate director and director of the department of clinical research from 1926 to 1949; died in Clermont, Fla., April 26, aged 72, of coronary occlusion.

Lynch, Jerome Morley ⊕ Carmel, Calif.; born in Ireland Jan. 11, 1869; Rush Medical College, Chicago, 1895; an Associate Fellow of the American Medical Association; member of the Medical Society of the State of New York; honorary member and fellow of the Royal Society of Medicine, London; member of the American Proctologic Society, of which he was past president, and the American Gastro-Enterological Association; fellow of the American College of Surgeons; member of the Military Order of Foreign Wars; specialist certified by the American Board of Surgery and the American Board of Proctology; at one time practiced in New York; served as professor of proctology at New York Polyclinic Medical School and Hospital; served during World War I; formerly consulting surgeon, Neurological Institute and New York State Psychiatric Institute, Beekman-Downtown Hospital, New York, General Hospital, Saranac Lake, N. Y., St. John's Riverside Hospital, Yonkers, N. Y., and St. Mary's Hospital in Hoboken, N. J.; author of "Diseases of Rectum and Colon and Their Surgical Treatment," 1914, and "Know Your Patient," 1943; co-author of "Tumors of Colon and Rectum, Their Pathology, Diagnosis and Treatment," 1925; died April 22, aged 82.

Taft, Robert Burbidge ⊕ Charleston, S. C.; born in Charleston Sept. 20, 1899; Medical College of the State of South Carolina, Charleston, 1923; professor of radiology and electrotherapy at his alma mater; specialist certified by the American Board of Radiology; served during World War I; past president of the South Carolina X-Ray Society; member and formerly chairman of the committee for use and rental of radium of the American Roentgen Ray Society, which awarded him silver medals for his exhibits in 1936 and 1942; member of the South Carolina Academy of Science, which in 1929 awarded him the Jefferson Medal; member of the Radiological Society of North America, of which he had been second vice president and member of the committee on standardization of x-ray, American College of Radiology, and the American Radium Society; member of the board of commissioners of the Charleston Museum; a licensed transport air pilot and member of the board of governors of Charleston Airport; affiliated with Baker Memorial Sanatorium; author, "Radium Lost and Found," published in 1938, and a second edition in 1946; technical editor of the *American Journal of Roentgenology;* died April 16, aged 51.

Ransohoff, Nicholas Sigmund ⊕ New York; born in Salt Lake City Oct. 18, 1895; Columbia University College of Physicians and Surgeons, New York, 1919; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; served as president of the New Jersey Orthopedic Society; fellow of the American College of Surgeons; associate orthopedic surgeon, Hospital for Joint Diseases in New York; orthopedic surgeon and director of fracture service, Monmouth Memorial Hospital, Long Branch; orthopedic surgeon, Riverview Hospital, Red Bank, N. J.; consulting orthopedic surgeon, Paul Kimball Hospital in Lakewood, Fitkin Memorial Hospital in Neptune, Children's Country Home in Westfield, and Betty Bacharach Home for Afflicted Children in Longport; died in Long Branch, N. J., April 25, aged 55, of coronary thrombosis and arteriosclerosis.

Shaklee, Alfred Ogle, St. Louis; born in Middle Creek, Ohio, Oct. 3, 1865; St. Louis University School of Medicine, 1908; associate professor of pharmacology at his alma mater; associate professor of pharmacology at the University of the Philippines College of Medicine in Manila from 1910 to 1913 and the University of Illinois College of Medicine in Chicago from 1914 to 1916; professor of physiology and biochemistry at Fordham University School of Medicine in New York from 1916 to 1918; associate professor of physiology at the University of Texas Department of Medicine in Galveston from 1918 to 1921; member of the American Association for the Advancement of Science; died in Desloge Hospital April 19, aged 85, of cancer.

Aldrich, Addison D. ⊕ Houghton, Mich.; born in 1879; Saginaw Valley Medical College, Saginaw, 1903; Detroit College of Medicine, 1910; past president of the Houghton-Baraga-Keweenaw Counties Medical Society; formerly a member of the state health council, a member of the advisory council of the state board of health, and director of the Houghton-Keweenaw-Baraga health department; served as health officer and physician for the village of Houghton, and for Portage, Elm River, and Osceola townships for many years; on the staff of St. Joseph's Hospital in Hancock; active in the Boy Scouts of America, receiving the honorary Silver Beaver Award in 1936; died April 21, aged 72, of fibrosarcoma of the lungs.

Partch, Wallace Taylor ⊕ Oakland, Calif.; born in Shanghai, China, Feb. 16, 1899; Rush Medical College, Chicago, 1926; specialist certified by the American Board of Internal Medicine; an associate member of the American College of Physicians; entered the Mayo Foundation as a fellow in medicine in April, 1927, and left the Mayo Foundation in April, 1930, at which time he went to the Welborn Hospital Clinic, Evansville, Ind., where he remained until January, 1932; served at Carle Hospital Clinic in Urbana, Ill., for about a year; on the staffs of the Alameda County, Peralta, Berkeley General, and Berkeley Alta Bates hospitals; died April 4, aged 52, of mesothelioma.

Baum, Harry Lester ⊕ Denver; born in Shelbyville, Ill., in 1887; University of Pennsylvania School of Medicine, Philadelphia, 1910; specialist certified by the American Board of Otolaryngology; formerly assistant professor of otolaryngology at the University of Colorado School of Medicine; member of the American Academy of Ophthalmology and Otolaryngology, Pacific Coast Oto-Ophthalmological Society, and the American Broncho-Esophagological Association; served on the staff of Children's and Presbyterian hospitals; died March 25, aged 63, of coronary occlusion and malignant hypertension.

⊕ Indicates Fellow of the American Medical Association.

Adams, John Robert, Fort Wayne, Ind.; Ohio Medical University, Columbus, 1905; member of the American Medical Association; died in St. Joseph Hospital Feb. 26, aged 75, of cerebral hemorrhage and arteriosclerosis.

Allison, Blake Seymour ⊕ Long Beach, Calif.; Lincoln Medical College of Cotner University, Lincoln, Neb., 1906; died April 6, aged 74, of carcinoma of the cecum.

Anderson, John Burton, Vincennes, Ind.; Barnes Medical College, St. Louis, 1899; died in Hillcrest Tuberculosis Hospital recently, aged 78, of pulmonary tuberculosis.

Baker, Frank Kline ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1890; died April 16, aged 88.

Bloomington, Frances E. Drake, Chicago; Hering Medical College, Chicago, 1900; died in Park Ridge, Ill., April 17, aged 96.

Bradish, Jay Durkee ⊕ New London, Ohio; Ohio State University College of Medicine, Columbus, 1924; past president of the Huron County Medical Society; served during World War I; for many years county coroner; on the staffs of Samaritan Hospital in Ashland and New London Hospital; at one time epidemiologist for the Connecticut State Department of Health; died April 21, aged 56, of injuries received in an automobile accident.

Breitzer, Constantine, Brooklyn; Long Island College Hospital, Brooklyn, 1907; died in Kings County Hospital recently, aged 74.

Brown, William Frank, Keokuk, Iowa; Jefferson Medical College of Philadelphia, 1905; served during World War I; died March 18, aged 67, of coronary thrombosis and cardiorenal vascular disease.

Cail, John Calvin Jr., Sylvania, Ga.; University of Georgia School of Medicine, Augusta, 1907; served during World War I; formerly a member of the city council and a state senator; awarded the Silver Beaver for his work with the Boy Scouts of America; died March 27, aged 64, of hypertensive cardiovascular disease with decompensation.

Carpenter, George Lansing, Wrens, Ga.; University of Georgia School of Medicine, Augusta, 1909; member of the American Medical Association; died March 28, aged 66, of cerebral thrombosis and arteriosclerosis.

Chapman, Arthur William, Glens Falls, N. Y.; University of Vermont College of Medicine, Burlington, 1907; member of the American Medical Association; fellow of the American Academy of Pediatrics; past president of the Glens Falls Academy of Medicine; specialist certified by the American Board of Pediatrics; president of the staff of Glens Falls Hospital, where he died April 10, aged 69, of carcinoma of the prostate with generalized metastases.

Clapp, Fred Raymond ⊕ South Bend, Ind.; Rush Medical College, Chicago, 1903; affiliated with Memorial Hospital, where he died April 28, aged 71, of carcinoma of the lung.

Cohenour, Leo Bertram ⊕ Albuquerque, N. M.; University of Colorado School of Medicine, Denver, 1918; served during World War I; in charge of procurement and assignment for the medical corps of the Army in New Mexico during World War II; for 18 years secretary of the New Mexico Medical Society; fellow of the American College of Surgeons; on the staff of Southwestern Presbyterian Sanatorium; died April 25, aged 59, of heart disease.

Craig, Edwin M., Norwood, Ohio; Miami Medical College, Cincinnati, 1906; police and fire surgeon; died April 10, aged 80, of arteriosclerotic heart disease.

Da Costa, Samuel N., Forest Park, Ill.; Chicago College of Medicine and Surgery, 1913; died in Oak Park April 30, aged 78, of pneumonia.

Daugherty, Thomas E., Baltimore; Baltimore Medical College, 1898; died April 22, aged 78, of bronchopneumonia.

Dolnick, Max A., Chicago; Chicago College of Medicine and Surgery, 1917; died April 19, aged 66, of coronary thrombosis.

Farthing, Charles Hamilton, Meeker, Colo.; St. Louis University School of Medicine, 1905; member of the American Medical Association; died in St. Mary's Hospital, Grand Junction, April 15, aged 72, of carcinoma of the prostate.

Gerow, James Wiggins, Reno, Nev.; California Medical College, San Francisco, 1902; died in St. Mary's Hospital April 8, aged 71, of heart disease and hypertension.

Gregg, Frank Benham, Wellington, Ohio; Miami Medical College, Cincinnati, 1892; served during World War I; died April 6, aged 85.

Gros, Hubert ⊕ Delphi, Ind.; Indiana University School of Medicine, Indianapolis, 1928; served during World War II; city health officer; served as county coroner; associate staff member, St. Elizabeth Hospital in Lafayette, where he died April 1, aged 47, of chronic cholecystitis and subhepatic biliary abscess.

Harpst, Howard Henry ⊕ Toledo, Ohio; University of Michigan Homeopathic Medical School, Ann Arbor, 1921; affiliated with Toledo Hospital, where he died April 1, aged 56, of chronic nephritis.

Hartz, William Harry, North Belle Vernon, Pa.; University of Pittsburgh School of Medicine, 1942; member of the American Medical Association; associated with Gemmill Hospital in Monessen; died in Miami, Fla., April 2, aged 34, of rheumatic heart disease.

Horigan, Joseph Aschwanden, Kansas City, Mo.; Columbian University Medical Department, Washington, D. C., 1888; member of the American Medical Association; died April 1, aged 87, of arteriosclerotic heart disease.

Horn, Martin Irving ⊕ Bridgeport, Conn.; New York Homeopathic Medical College and Flower Hospital, New York, 1912; member of the New England Obstetrical and Gynecological Society; president of the Bridgeport Medical Association; affiliated with St. Vincent's Hospital, where he served as president of the staff; died April 1, aged 64.

Keith, Frederick Scott, Newton, Mass.; Harvard Medical School, Boston, 1892; a trustee and member of the executive board of the Newton-Wellesley Hospital, Newton Lower Falls; one of the original trustees of the Hahnemann Hospital in Boston, where he was a member of the staff; died April 5, aged 82.

Kinne, George Lyman, Holyoke, Mass.; University of Maryland School of Medicine, Baltimore, 1887; an examiner for the Metropolitan Life Insurance Company for many years; formerly affiliated with Providence Hospital and Holyoke Hospital, where he died April 4, aged 90, of myocardial failure, following a hip fracture.

Langill, Morton Howard ⊕ Worcester, Mass.; Dartmouth Medical School, Hanover, N. H., 1910; specialist certified by the American Board of Radiology; member of the New England Roentgen Ray Society and the American College of Radiology; affiliated with Belmont, Fairlawn, and Worcester City hospitals; died March 30, aged 66.

MacDonald, John Tremper ⊕ Miami, Fla.; Medico-Chirurgical College of Philadelphia, 1909; fellow of the American College of Surgeons; served during World War I; medical director, Pan American Airways, Latin American Division; a founder of Doctors Hospital in Coral Gables, where he died April 3, aged 65, of coronary thrombosis with myocardial infarction.

Macdonald, William H. ⊕ Lake Geneva, Wis.; Chicago Homeopathic Medical College, 1888; died March 17, aged 84.

Macmurphy, George Yuille, Hendersonville, N. C.; Medical College of the State of South Carolina, Charleston, 1891; died Feb. 13, aged 81, of postoperative hypostatic pneumonia and intestinal obstruction.

McPherson, William Ellsworth, Canton, Mass.; Harvard Medical School, Boston, 1891; served during World War I; died Feb. 13, aged 87, of bronchopneumonia.

Mitchell, William Harvey, Loudon, N. H.; Dartmouth Medical School, Hanover, N. H., 1893; member of the American Medical Association; died March 2, aged 82.

Morin, Jeremiah Joseph ⊕ Rochester, N. H.; University of Vermont College of Medicine, Burlington, 1909; organizer and later chief of the Frisbie Memorial Hospital; an organizer and a charter director of the Blue Shield in New Hampshire; served during World War I; died March 20, aged 65, of acute coronary occlusion.

Moyer, Jonas J., Oakland, Calif.; University of the South Medical Department, Sewanee, Tenn., 1900; died in Peralta Hospital April 4, aged 83, of acute myocardial infarction and diabetes mellitus.

Nelson, John Elisha, Chattanooga, Tenn.; University of Nashville Medical Department, 1900; member of the American Medical Association; served during World War I; died April 6, aged 74, of heart disease.

Ognibene, Daniel Francis, Long Valley, N. J.; Long Island College Hospital, Brooklyn, 1907; died in Orange Memorial Hospital, Orlando, Fla., March 22, aged 68, of congestive heart failure, coronary sclerosis, and hypertension.

Perez, Manuel Aquilino, Tampa, Fla.; Loyola University School of Medicine, Chicago, 1934; member of the American Medical Association, American Heart Association, and the Florida Pediatric Association; on the staffs of Tampa Municipal Hospital and St. Joseph's Hospital, where he died April 7, aged 41, of lymphosarcoma.

Prince, John Hayes, Piqua, Ohio; Medical College of Ohio, Cincinnati, 1909; died in Piqua Memorial Hospital March 6, aged 75, of mitral stenosis and auricular fibrillation.

Quatrano, Emanuel, Tenafly, N. J.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Naples, Italy, 1921; died in St. Mary's Hospital, Passaic, March 1, aged 53, of chronic diffuse glomerular nephritis.

Rauschenbach, Charles William ⊕ Hammond, Ind.; University of Maryland School of Medicine, Baltimore, 1912; certified by the National Board of Medical Examiners; specialist certified by the American Board of Radiology; member of the Radiological Society of North America; affiliated with St. Margaret's Hospital, where he died Feb. 17, aged 61, of carcinomatosis.

Rey, Herman Frederic ⊕ Oxnard, Calif.; Universität Zürich Medizinische Fakultät, Zurich, Switzerland, 1921; fellow of the American College of Surgeons; affiliated with St. John's Hospital, where he died Feb. 21, aged 54, of multiple myeloma.

Rhodes, Thomas Alfred, Titusville, Fla.; Maryland Medical College, Baltimore, 1902; died March 9, aged 63, of chronic lymphoblastoma.

Rollins, Russell ⊕ Royal Center, Ind.; Indiana University School of Medicine, Indianapolis, 1936; died March 31, aged 55, of adenocarcinoma of the left parotid gland.

Runyan, William John, Glen Ridge, N. J.; Long Island College Hospital, Brooklyn, 1915; member of the American Medical Association; served during World War I; affiliated with Montclair (N. J.) Community Hospital, and the Hospital for Crippled Children in Newark; at one time superintendent of the Essex County Hospital for Contagious Diseases in Belleville; died March 5, aged 61, of coronary thrombosis.

Scanlan, Maurice ⊕ De Witt, Iowa; Rush Medical College, Chicago, 1900; died in Mercy Hospital, Davenport, April 3, aged 75.

Schottler, George Jacob, Dexter, Minn.; Rush Medical College, Chicago, 1896; member American Medical Association; died in Austin Feb. 15, aged 80, of coronary sclerosis.

Sheehan, William Coronato ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1913; fellow of the American College of Surgeons; served during World Wars I and II; on the surgical staff at Chestnut Hill Hospital; died in Palm Beach, Fla., April 12, aged 62, of coronary occlusion.

Snow, Frank Whipple ⊕ Newburyport, Mass.; Harvard Medical School, Boston, 1902; chairman of the local board of health; member of the House of Delegates of the American Medical Association from 1948 to 1951; affiliated with Anna Jaques Hospital; died in New York March 10, aged 72, of coronary occlusion.

Titsworth, George Ezra Jr., Bandana, Ky.; University of Louisville (Ky.) Medical Department, 1910; member of the American Medical Association; died recently, aged 64, of pulmonary infarct.

Turkus, Edward Newton ⊕ Vista, Calif.; Long Island College Hospital, Brooklyn, 1913; for many years member of the medical staff of St. Mary's Hospital; served as police surgeon; died April 19, aged 61, of cerebral hemorrhage.

Verser, William Walter ⊕ Harrisburg, Ark.; Memphis (Tenn.) Hospital Medical College, 1909; died March 17, aged 76.

Watkeys, Frederick W., Boston; Harvard Medical School, Boston, 1896; died Feb. 20, aged 85.

DIED WHILE IN MILITARY SERVICE

DuFrenne, Martin Fred ⊕ Colonel, M.C., U. S. Army, Middleton, Wis.; born in Middleton, Oct. 23, 1893; Marquette University School of Medicine, Milwaukee, 1916; entered the medical corps of the U. S. Army on July 1, 1920; served in Hawaii and the Philippines during World War I; graduated from the Medical Field Service School in 1923 and from the Army Medical School in 1924; during World War II was on duty as commanding officer, station hospital, Fort Myer, Va., and as surgeon, Military District of Washington, from 1942 to 1945; transferred to command of the station hospital at Fort Belvoir in 1947, where he was serving at the time of his death; was given the British Empire Medal and the Legion of Merit from our government; fellow of the American College of Surgeons; died in Walter Reed Army Hospital, Washington, D. C., Dec. 13, 1950, aged 57, of arteriosclerotic renal disease.

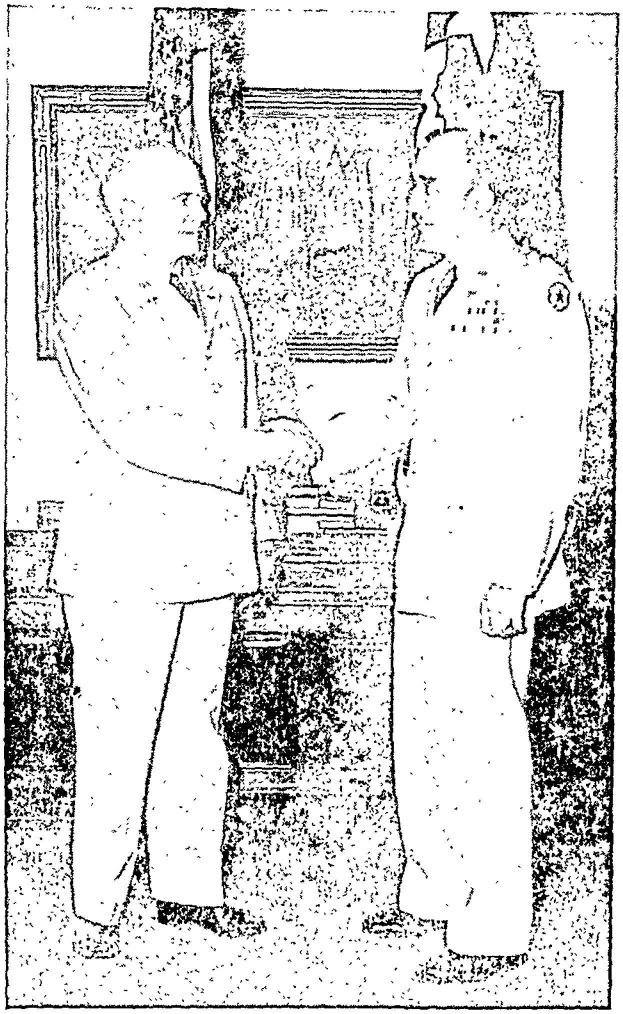
Fairless, Clyde Joseph Jr., Lieutenant Commander, M. C., U. S. Navy, Des Moines, Iowa; born in Des Moines Nov. 22, 1915; State University of Iowa College of Medicine, Iowa City, 1943; interned at the U. S. Naval Hospital in Memphis, Tenn.; commissioned a lieutenant (jg) in the medical corps of the U. S. Navy on Feb. 17, 1944; during World War II served as medical officer aboard ships operating in the South Pacific, with Marine Air Groups, and in 1946 completed instructions at the Naval Air Station in Pensacola, Fla., and was designated a Naval flight surgeon; member of the Aero Medical Association; flight surgeon aboard the Carrier *Franklin D. Roosevelt* operating in the Mediterranean; killed March 6, aged 35, when the plane in which he was a passenger crashed into the sea.

Hudson, Millard Fillmore ⊕ Medical Director, Captain, U. S. Navy, Washington, D. C.; born in Madisonville, Tenn., Dec. 17, 1889; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; specialist certified by the American Board of Internal Medicine; appointed a lieutenant (jg) in the medical corps of the regular navy in 1917; promoted to the rank of captain in 1941; served at various naval hospitals in the continental United States; aboard ships of the Pacific, Atlantic, and the Asiatic fleets; completed a course at the Naval War College in 1942; served on the Naval Retiring Board; a member of the physical disability appeal board, Navy Department, at the time of his death; for outstanding service while on the staff of the Commander Service Force Atlantic Fleet, was awarded the Letter of Commendation; died March 29, aged 61, of coronary occlusion.

GOVERNMENT SERVICES

ARMY

General Armstrong Takes Oath as Surgeon General.—Maj. Gen. George E. Armstrong was sworn in June 6 as Surgeon General of the Army at a ceremony in the office of the chief of staff of the Army. General Armstrong succeeds Maj. Gen. Raymond W. Bliss, whose retirement from the Army after 40 years' service became effective May 31. Present at the ceremony in addition to Gen. J. Lawton Collins, Army chief of staff, were Mrs. Armstrong, the general's wife; Sen. William E. Jenner of Indiana; Rep. Charles A. Halleck of Indiana; Asst. Sec. of the Army Earl D. Johnson; Vice Adm. Joel T. Boone of the Veterans Administration; Maj. Gen. Wallace H. Graham, physician to the President; Rear Adm. Lamont Pugh, Surgeon General of the Navy; Maj. Gen. Harvey G. Armstrong, Surgeon General of the Air Force; Dr. Leonard A. Scheele, Surgeon General, U. S. Public Health Service, and Dr. Joseph Lawrence, Chairman, Washington office, American Medical Association.



Maj. Gen. R. W. Bliss (left), retiring Surgeon General, and Maj. Gen. George E. Armstrong, the new Surgeon General.

General Armstrong was born in 1900 in Indiana. He received an A.B. degree in 1922 and an M.D. degree in 1925 from the University of Indiana. He enlisted as a private in the Indiana National Guard in March, 1923, and was honorably discharged as a technical sergeant in 1925 to accept a commission as a first lieutenant in the Army Reserve Corps. Following internship at Letterman General Hospital, San Francisco, he was commissioned a first lieutenant in the regular Army Medical Corps in 1926.

During World War II he served as assistant theater surgeon, China-Burma-India, followed by two years as surgeon of the China theater. He returned to the United States in 1946 to serve as chief of personnel in the Surgeon General's Office, and in 1947 he was appointed Deputy Surgeon General.

He is a fellow of the American College of Surgeons and the American Medical Association; a member of the Scottish Rite and Shrine; Phi Kappa Psi; Alpha Omega Alpha; Phi Rho Sigma, and Scabbard and Blade fraternities. He has served as a member of the House of Delegates of the American Medical Association; member of the executive council of the Association of American Medical Colleges, and member of the board of directors of the American Bureau for Medical Aid to China. Among his decorations are the Legion of Merit, the Asiatic-Pacific Campaign Medal with three bronze stars, Chinese Legion of Honor, and the Order of the Crown of Italy.

NAVY

Training for Volunteer Reserve Personnel.—The following training programs will be available to volunteer Naval Reserve medical personnel during the 1952 fiscal year:

1. A six-day course in medical aspects of special weapons and radioactive isotopes at the National Naval Medical Center, Bethesda, Md. Medical, medical service, and nurse corps officers may apply for this training.

2. A 14-day active duty training program in amphibious medicine at Little Creek, Va. Volunteer reserve medical and medical service corps officers in the grades lieutenant and lieutenant (j. g.) may apply for this training. Classes are scheduled to convene on July 9, 1951, Oct. 1, 1951, and April 7, 1952.

3. A 14-day active duty training program in malariology and mosquito control at the Naval Malaria and Mosquito Control Unit No. 1, Jacksonville, Fla. Medical and medical service corps officers may apply for this training. Classes are scheduled to convene on the first and third Wednesday of each month except January, February, and March, 1952.

4. A 14-day active duty training program for Naval Reserve ensign (HP) officers at the Naval hospital nearest the applicant's home. All officers with the rank of ensign (HP) may request this course of instruction. Applications for this training will be approved for the months of July, August, and September, 1951, only.

5. A 14-day active duty training program for enlisted volunteer Naval Reserve hospital corpsmen at the Naval hospital nearest the applicant's home.

Personal.—Rear Adm. Lamont Pugh, Surgeon General of the Navy, has been elected to membership in Phi Beta Kappa, the national scholastic fraternity. Initiation ceremonies were held at the University of Virginia, Charlottesville, June 9, following which a banquet was given by the local chapter in honor of new members.

MISCELLANEOUS

Commissioner of Food and Drugs Retires.—Paul B. Dunbar, Ph.D., commissioner of food and drugs, who has spent nearly 44 years in government service, retired at his own request May 31 and was succeeded by Charles W. Crawford, now deputy commissioner, who has been in government service 34 years and who for many years has devoted much of his time to drafting food and drug regulations and standards. Dr. Dunbar, a graduate of Gettysburg (Pa.) College, obtained his Ph.D. degree in chemistry from Johns Hopkins University. He was selected by Dr. Harvey W. Wiley as one of the original group to undertake enforcement of the Pure Food and Drugs Act of 1906.

FOREIGN LETTERS

ITALY

Q Fever.—At a session of the medical academy Filippo Pacini in Pistoja devoted to Q fever, Professor Cantieri, director of the Pistoja Hospital, discussed 11 cases observed at the hospital in addition to cases from his private practice. Diagnosis was based on complement deviation with positive titers varying from 1: 16 to 1: 4,060.

History revealed neither common living quarters among the patients nor contact with animals in the stable, herds of cattle, or animals from the slaughter-house. Only in one case was there direct contact with another patient. In another, the patient had become infected from autopsy material. The course of the disease was mild in most patients, with recovery by rapid lysis within 10 days. Hepatorenal involvement was fairly frequent with constant urobilinuria and frequent albuminuria associated with cylindruria. Sometimes fever was intermittent, with severe headache but without pulmonary manifestations. In some cases there were pulmonary manifestations, from the third to the seventh day, with scarcely any other symptoms, sometimes without any roentgenologic signs and without functional disturbances. There was no flare-up of healed tuberculous lesions and no exacerbation of an existing latent tuberculous condition. Pleuropulmonary manifestations with serous exudation, femoral phlebitis, remissions and successive relapses were rare.

Therapeutically, no response to penicillin was observed; satisfactory results were obtained with chloramphenicol and aureomycin in two cases. Professor Cantieri stressed the importance of Q fever in differential diagnosis and the importance of biologic tests as diagnostic aids. Persistent headache, sweating, type of pulmonary localization, hepatorenal involvement, and enlarged spleen are significant and require particular attention.

Dr. Mario Santi stated that doctors, especially those in rural districts, should have good knowledge of Q fever, so that patients may be treated effectively without being hospitalized. One of Dr. Santi's patients had early ulceration of the Bouveret-Duguet type in the pillars of the fauces, which until now has been considered almost pathognomonic of abdominal typhus. Another patient had a rusty sputum, which was also observed in recurrences. In many patients a peculiar condition of the tongue, ariboflavinosis, was observed on the sixth or seventh day. Epidemiologic data did not provide evidence of the probable ovine orgin of the small epidemic. The action of chloramphenicol was rapid and evident in all cases, and it constituted a useful criterion for tentative diagnosis.

Dr. Arcangioli described 10 cases of Q fever observed in Pistoja in two well-differentiated periods, from February to May and from September to November, 1950. In the first period the disease was associated with bronchopulmonary manifestations and in the second period with general infectious phenomena. The onset was acute, with severe headache, sweating, severe chills, and fever; it resolved by lysis by the 10th or 12th day. The complement deviation test was positive in all the patients. Penicillin and streptomycin gave poor therapeutic results; response to chloramphenicol was good.

Professor Terzani, Florence, recalled that the first Italian cases of Q fever were observed by Terzani and Rossi in Florence during the first months of 1948. Other cases were observed at the end of 1949 and in the first months of 1950. A definite diagnosis was made by ascertainment of complement deviation; positive results were obtained even 26 months after recovery from the disease. Forty-three patients were observed, only four of whom were women; the greatest incidence occurred in the age group 20 to 40 years; persons with various occupations, but especially farmers, physicians, medical students, and meat workers, were affected by the disease. A small epidemic occurred among the physicians and students at the Institute of Pathological Anatomy of the University of Florence after necropsy was performed in a patient who died from atypical pneumonia.

Clinical symptomatology was not uniform; even in the pulmonary manifestations great variety existed. Complement deviation was the most important laboratory test. In general, it occurred between the seventh and the tenth day; the dilution level increased usually with the progress of the disease, and the positive reaction was persistent. Professor Terzani does not believe that this demonstrates persistent infection, because relapses did not occur in any of the cases he observed. Terzani believes that complement deviation, as well as agglutination and culture, involves too much delay. There is great need for a method by which diagnosis may be established earlier.

Professor Davoli, of the University of Florence, stated that the problem of the local epidemiologic course of the disease is important. As demonstrated in Toscana, small epidemics may occur frequently without the disease becoming endemic. An epidemiologic study of Q fever was started by Professor Davoli on the request of the high commissioner of hygiene and public health.

Therapy of Testicular Ectopy.—Professor Perazzo stated that he agrees with Professor Giuliani that immobilization of the testis may result in eventual damage to the testicular parenchyma. Complete isolation of the ductus deferens, which always is sufficiently long, may be harmful. The epigastric vessels offer a certain obstacle to the placement of the testis and should be sectioned.

The small percentage (9 to 10%) of atrophy of the testicle in patients operated on is negligible. No method of orchiopexy can give 100% positive results, since there is a percentage of primarily aplastic testes.

Professor Caucci claimed never to have seen a testis descend into the scrotum with hormone therapy; he maintained that all cryptorchid patients should be operated on. The speaker answered that his observation would be of value only when it would be known in which patients it has been practiced and how it has been done. When operating on a patient 8 years old, it is not possible for one to know whether the testis would not have descended spontaneously, or with hormonal treatment, e. g., at about the age of 10. The object of his report was to establish a classification of the various forms of cryptorchism on which could be based a system of logical therapy. It is important to ascertain whether the lesion is primary or secondary. A whole scale of abnormal changes exist, which are manifested clinically under multiform aspects, and if these facts are not known, it will never be possible to institute a rational therapy.

If the patient is thoroughly studied and the therapeutic indications are exact, 100% positive results may be obtained with hormonal therapy, while no more than 80 to 90% of favorable results may be obtained after surgical therapy. The speaker does not share Professor Amantea's concept that the atrophic testis may exert an inhibitory influence on the healthy one. In fact, in the post-traumatic atrophy of a testis in youngsters, a vicarious hypertrophy of the remaining testis occurs.

Professor Romualdi expressed the belief that the endocrine glands do not exert any influence on cryptorchism and on the descent of the testis. According to Professor Perazzo, this objection does not explain the causal factor of the descent of the testis, of the pathogenesis of cryptorchism, and of the undeniable existence of degenerative characteristics in cryptorchid patients. Romualdi affirmed that the glands of internal secretion do not function in the fetus. According to Professor Perazzo, that may be true during the first weeks in which exclusively maternal hormones circulate in the fetus, but the endocrine function soon becomes activated. In fact, Wells has demonstrated corticoadrenal secretion, while Hooker and collaborators have extracted androgen from fetal testes.

The items in these letters are contributed by regular correspondents in the various foreign countries.

Professor Polichetti reported practicing postoperative hormone therapy in his patients. The speaker replied that such therapy is always recommended in his clinic as an adjunct to surgical therapy. Androgens were used in doses of 25 to 50 mg. twice a week for direct stimulation of the gonad, which is in condition to respond to such stimulus when located in the normal site. The speaker agreed with Professor Cavina that the abdominal testis, especially in iliac retention, often is not palpable, but when operated on is well developed. In conclusion, Professor Perazzo pointed out that all the speakers agreed on the absolute necessity that the testis be brought into the scrotum at the period of puberty. Otherwise cryptorchism results in castration.

New Concepts Concerning the Great Omentum.—Professor Schiassi lectured at the Academy of Science of Ferrara on the newer concepts regarding the great omentum. According to Schiassi, the great omentum, which covers the abdominal viscera, provides thermic protection of the digestive system through the number and volume of its fat lobules and protects the intestine from compression by aponeurotic formations or hernial protrusions.

It has a fairly rich and active supply of blood, lymph, and nerves; these provide a chemotactic action which limits disease processes and diminishes their damaging effects. The circulation of the large omentum is directly related to the circulation of the viscera, especially of the liver, and the great vascularity has induced surgeons not to limit themselves, in case of extensive resection, to ligation of the main pedicle only, but always to make additional ligatures. This same vascularity, on the other hand, induced Talma to devise the surgical procedure for ascites in some cases of hepatic cirrhosis.

SWEDEN

Reliability of Radiograms.—Disquieting disclosures in the foreign medical press concerning the frequency with which radiograms are misinterpreted have made Swedish radiologists look critically at their own work. Dr. Arne Nelson, who is in charge of the Swedish State Radiography Center, has lately given an account of the precautions taken at this center to reduce mistaken interpretations of radiograms to a minimum. Every newcomer to this center has to serve a carefully graduated apprenticeship. During his first month he does nothing but follow the work of an experienced colleague. During his second month he passes judgment on only a small number of radiograms, and he does not begin to act as an independent interpreter of them until he has given satisfaction for three to four months. During this period, and during his first year and also at later intervals, his work is subjected to sampling tests, and he is usually not expected to pass judgment on more than 700 to 800 radiograms daily. Dr. Nelson admits that a substantial reduction could be made in the incidence of errors if all positive radiograms were to be judged by three instead of by two experts. However, the cost of this additional precaution would be considerable.

Psychotechnical Tests for Entrants to Medical Schools.—The recent proposal by an authoritative body to limit the number of entrants to the medical profession by subjecting them to psychotechnical tests has evoked a lively discussion on the merits of such tests in the lay and medical press. Prof. Robin Fåhræus, whose pioneer work on the erythrocyte sedimentation rate is well known, has little good to say of these tests. He believes that students can be cleverly coached to pass the tests and thus be enabled to defeat their competitors unfairly. He is also of the opinion that an applicant from the country would be handicapped in a test competition with the often better-informed city dweller. Psychotechnical testing, being still in its infancy, may vary in quality with the different experts employing it. His opinion of such testing is, indeed, so poor that he suggests the drawing of lots as a better alternative. Docent Bror Rexed, a member of the authoritative body just referred to, disagrees with much of the above criticism. He points out that, during the last 15 to 20 years, more than 200,000 applicants for admission to medical schools in the United States have undergone such tests. He does not believe in any effective short cut to the passing of such tests by coaching or cramming, and he insists that there is hardly any limit to the variations that can be made in such tests.

Dr. Bengt J. Lindberg, on the other hand, bases his criticism of such tests on the reflexion that they are quite incapable of "spotting the winner," of preserving for the medical profession those who could become its best known members. If one studies the biographies of Swedish doctors, he will find they represent every variety of personality and mental equipment from the mechanical genius and the coldly intellectual to the warm-hearted family doctor, from the artist to the statistician. It is possible that the need for such tests may be greater in the United States, with its comparatively wide range of school education, than it is in Sweden, where considerable uniformity of education is achieved throughout. The admission of students to the medical curriculum, hitherto largely depending on school records and examinations, can therefore be regulated according to comparatively uniform standards in Sweden.

Dr. Lindberg has recently suggested an alternative to psychotechnical tests—examination records and the drawing of lots. It is a system that would defer decision for or against admission to medical studies until a course and examination had been taken in certain subjects, such as statistics, psychology, and genetics. Whatever the outcome, such a course need be no waste of time, since these subjects would be useful in any case.

Legal Induction of Abortion.—The so-called abortion law of June 17, 1938, has been supplemented from time to time by certain regulations, the last of which is dated May 17, 1946. The indications for the legal induction of abortion are now clearly defined. In the larger towns in Sweden, expert advice is now available for women contemplating the induction of abortion. This problem is less easily solved in the smaller towns, but a communication on the subject in the organ of the Swedish Medical Association, *Svenska Läkartidningen*, April 13, 1951, by Dr. C. G. Tropé and a social worker, Dorrit Carlson, shows what was observed in a town with a population of about 25,000. Their observations concern the year Nov. 1, 1949-Nov. 1, 1950, during which a special department attached to a child welfare center dealt with 34 cases (21 married women and 13 unmarried, divorced, or widowed) of legal induction of abortion. The average age of the married women was comparatively high; 57% of them were between the ages of 31 and 45, whereas only 8% of the women in the second category belonged to the same age group. Of the 26 women whose request was granted, 18 were married. Hardly any of the 34 women had exact knowledge about birth control and how to achieve it. Among them was one who had made use of a pessary on the advice of a doctor and one whose husband had made systematic use of a condom. Some of the women had heard or read about preventive measures but had not known to whom to turn for advice.

The outstanding lesson to be learned from this study is that women who wish to terminate their pregnancies do so not for a single reason, but for a combination of reasons. Women in these circumstances are not so much in need of a special department dealing with abortions, or another department dealing only with sex problems, as of a department for advice on all family problems.

Between November, 1948, and May, 1949, 83 women were admitted to a gynecological hospital in Uppsala for legal induction of abortion. After a detailed discussion with a doctor, as many as 30 of these 83 voluntarily decided to dispense with this measure. None of the 30 subsequently regretted this decision. In line with this experience is that of Dr. Gösta Carlsson, who has concluded psychic follow-up examination of 200 women for whom legal abortion had been induced in 1949 in the county of Stockholm. As many as 60% admitted to a sense of anxiety and remorse a year after the abortion, and only 25% said they did not regret the abortion.

One of the chief objects of the abortion law was to prevent the illegal induction of abortion. Strange as it may seem, this law has apparently had the opposite effect. In coming to this conclusion, Dr. Axel Ingelman-Sunberg, of the Sabbatsberg Gynecological Hospital, has made a careful statistical study of the effects of the abortion law in the Stockholm area in the period 1940-1949. Up to 1947, the number of legal abortions rose and the number of illegal abortions fell, but since then the number of illegal as well as legal abortions had risen markedly, presumably because the abortion law has made the community abortion-minded, and women who have experienced or heard of the cross-examinations preceding the legal induction of abortion often prefer an illegal abortion undertaken by persons who dispense with awkward questions.

The Swedish Medical Association is urging the minister of health to issue up-to-date, quarterly statistics concerning the legal induction of abortion. These cases numbered about 500 a year during the first few years after the abortion law of 1938 was put into effect: in 1949 this number had jumped to 5,503. In 1950 there were some 6,400 applications for the induction of abortion, and permission was given in about 5,900 cases. Altogether, in the 10-year period 1939-1948, consent was given to as many as 15,920 legal abortions. The mortality in 1948 for legal abortions was 0.8 per thousand. The population of Sweden is now approximately seven million.

DENMARK

ACTH in Skin Diseases.—At the dermatologic department of the Rigshospital in Copenhagen, 12 patients suffering from various skin diseases have been given injections of a Danish pituitary adrenocorticotropic hormone (ACTH) preparation. Giving an account of their experiences with these cases in the organ of the Danish Medical Association, *Ugeskrift for Laeger*, for February 22, Drs. H. Brodthagen, Fl. Reymann and M. Schwartz state that the dosage and duration of the treatment varied considerably, depending on the clinical reaction and, to some extent, on the quantity of the drug available. Their dosage of 20 to 45 mg. in the 24 hours was divided into three injections. It was considerably less than the dosage usually given elsewhere, but it seemed to be sufficient, to judge by the steroid excretion from the urine and the eosinophil-leukocyte count. The diseases treated were lupus erythematosis disseminatus (two cases) pemphigus vulgaris (two cases), psoriasis (four cases), scleroderma diffusa (two cases), periarteritis nodosa (one case), and epidermolysis bullosa (one case).

The results obtained were varied. The reaction in an apparently hopeless case of pemphigus vegetans was dramatic. After only a few days the large excoriations began to heal, and there was no new crop. The treatment was continued for 68 days, and there was no sign of relapse after it had been discontinued for a couple of months. The other pemphigus patient was also rendered symptom-free in a few days. However, when the treatment was discontinued after a month, a relapse occurred on the fourth day. Renewal of the treatment brought prompt cure, but when the treatment was discontinued after a little more than a month, a relapse followed in a few days. ACTH is now to be combined with antibiotics with results to be recorded later. The reaction in the four cases of psoriasis was disappointing. Redness and infiltration began to disappear in one of these cases after the treatment had lasted only two or three days, but when intensive treatment had been given for 19 days and the dosage of ACTH was thereupon halved, there was a speedy return of symptoms. Neither of the two patients with scleroderma benefited greatly from the treatment, though there was some reaction to it. The patient with periarteritis nodosa (diagnosis verified by muscle biopsy) received large doses of ACTH for 22 days but derived no benefit from it.

What Do the Elderly Think and Need?—"De Gamles By" (Old Folks' Town) is the name of an institution in Denmark housing several hundred elderly persons. One section of it is for those who can move around freely. Drs. E. Kjörboe and N. Vinther-Paulsen selected 100 men and 100 women for a special inquiry. All 200 were over the age of 65, and most of them were between 65 and 85 and had lived in the institution for more than three years. They were asked what they thought of having to live with other old people, out of contact with young people. Only 11% replied that they missed daily contact with young people and that they were depressed by the constant sight of debility. This did not necessarily mean that the remaining 89% revelled in the company of their contemporaries, for only 11% of the men and 19% of the women had formed new friendships with their fellows in the institution. The attitude of these old persons to each other was often suspicious, as witness the common remark "It is best to keep oneself to oneself, to listen and not to speak." Most of the 200 lived four to a room (new buildings provide only single bedrooms). Of 82 men who shared a bedroom with others, 25% were unwilling to have a bedroom to themselves and 11% were indifferent on this subject. It was generally agreed that four to one bedroom was too much, whereas two to a bedroom was held to be the ideal by many because it provided company and a sense of security in case of sudden illness.

The institution does not provide for organized occupational therapy, but some two score of its inmates helped in the garden, peeled potatoes and served food in return for a modest weekly wage. Regular work was also undertaken by 36% of the men and 18% of the women. Those who had no work were asked if they missed it. Half the men and only one-fifth of the women admitted that they did so. The men suffered more in this respect, because the women were better able to employ themselves with needlework and knitting. While 56% of the women helped to pass the time with some hobby or other, only 7% of the men did so. Twenty-nine per cent of the men and 21% of the women had no employment of their own and did not miss it. Many (21% of both sexes) complained that time hung heavy on their hands. One of the most important conclusions drawn from this investigation, reported in the organ of the Danish Medical Association, is that in institutions for the aged much greater provision must be made for the occupation of the inmates than has hitherto been the case. It is difficult for the aged on their own initiative to acquire new hobbies and interests, so that it would seem that hobbies should be cultivated earlier in life.

Tuberculosis Studies.—The position Denmark occupies with regard to the tuberculosis death rate is stressed by a pamphlet recently issued by the British National Association for the Prevention of Tuberculosis. On page 1 of this pamphlet a list is presented of 15 different countries and their respective tuberculosis death rates in 1948. The following figures refer to the number of tuberculosis deaths per hundred thousand of the population. Denmark, with 30, is first on the list. The United States, with 33, is next, and Holland with 37, is third. Fourth on the list are England and Wales, with 51; Sweden is next, also with 51. Norway is eighth on the list, with 65, and Scotland is ninth, with 72.

It is in keeping with Denmark's lead in this field that the tuberculosis studies published in recent years bear the mark of painstaking thoroughness. In its number for March 15 of this year, the organ of the Danish Medical Association, *Ugeskrift for Laeger*, publishes a whole series of statistical studies of tuberculosis. One of these studies, by Dr. Knud Winge, emphasizes that, when a wholesale search is made in a community for new cases of tuberculosis by mass radiography, the yield of new cases is much higher in a tuberculous environment than in the community taken as a whole. He shows that, among the 1,265 members of tuberculous households examined in Copenhagen in the period 1946-1948, as high a proportion as 3.2% were found as new cases, whereas this was the case with only 0.24% of all the 327,888 persons examined in the same period. Another study, this one by Dr. G. Falkenfleth, concerns the discovery of new cases of bacillary pulmonary tuberculosis in the county of Randers in the period 1944-1949. Among these 607 new cases, there were as many as 61, roughly 10%, found to be tuberculous in a general hospital to which they had been admitted for some other ailment, such as asthma or dyspepsia.

Inaccuracies in Medical Certificates.—The drafting of medical certificates by doctors in Denmark is regulated by law. Doctors are told to word their medical certificates with care and without prejudice. There is also an unwritten law according to which the authorities delegate the supervision of doctors in this respect to the Danish Medical Association, which is expected to keep good order in its own house. This more or less informal disciplinary function has of late given the Danish Medical Association much trouble. The opening sentence of an editorial notice in the organ of this body, *Ugeskrift for Laeger,* reads: "With growing frequency and from important quarters the Central Committee is receiving complaints concerning medical certificates. These complaints are carefully examined. Sometimes they are entirely unwarranted, but not infrequently they are only too well justified." The same editorial goes on to point out that this state of affairs cannot be tolerated, partly because it is in itself objectionable and destructive of the good repute of the medical profession, partly because tolerance may very easily impair the tacit goodwill the authorities have shown in allowing the profession to administer justice in this matter. The disciplinary powers held by the Danish Medical Association are by no means negligible, and it promises to be much stricter in its exercise thereof than it has been hitherto. It can be so partly by instituting arbitration proceedings, partly by requiring higher penalties for convicted offenders, and partly by publishing their names.

BUREAU OF INVESTIGATION

A WARNING TO DOCTORS AND HOSPITALS

A Case of Narcotic Addiction.—The case of Bernard J. Messing Jr., a meperidine (demerol®) addict, has been brought to the attention of the Bureau by a Pennsylvania physician. He comments that the case illustrates some of the weaknesses in existing narcotic legislation and points the way to needed action.

Bernard J. Messing Jr. is described as a 28 year old, white male, weighing about 140 to 150 pounds, with light brown hair, swarthy or yellow complexion, fine pointed nose, and a tattoo on the right forearm inscribed "Dorthy Moore." He has great difficulty and hesitation in pronouncing the letter 'S' as in Samuel and 'F' as in fox. He does not have pupil constriction, tremor, or visible scars along the vein. Scratches on the skin, which the patient attributes to injuries in his alleged occupation of trucker, are actually the source of blood which he mixes with his urine before exhibiting it to the nurses. Scratches on the back of the left hand may be the means of ready identification.

Recently this man appeared at a Pennsylvania hospital, complaining of pain in the left kidney region and in the left loin, and saying that he had passed a stone some months previously. He was admitted to the hospital after furnishing a urine specimen containing blood, and was given meperidine preparatory to cystoscopy. Negative results of cystoscopy and urinalysis brought an admission from this patient that he had been using meperidine since 1949.

He hitch-hikes from place to place and, apparently, has made his way from hospital to hospital for the sole purpose of obtaining meperidine and, incidentally sustenance. He has gained admittance to hospitals in Florida, Virginia, North Carolina, West Virginia, and Pennsylvania. There is indication, also, that he signed an Admission of Guilt of Blue Grass Charges at the United States Public Health Hospital at Lexington, Ky., in 1950.

Inasmuch as there were no facilities for institutionalizing this man in Pennsylvania, it is reported that arrangements were made to transport him voluntarily to the federal institution in Kentucky. The last heard from him, after he had been placed on a bus for Kentucky, was a postal card from Pittsburgh which indicated that the man did not intend to report.

Presuming that the pattern of claimed attacks of renal calculi will continue, doctors and hospitals in western Pennsylvania, Ohio, Indiana, and northern Illinois should be alerted. The addict apparently does not object to cystoscopy. If he is encountered, local police should be notified, with the request that he be held for federal agents.

MEDICAL MOTION PICTURES

Resistive Exercises in Physical Therapy for Thoracoplasty: 16 mm., color, sound, showing time 25 min. Produced in 1950 by Physical Medicine and Rehabilitation Division, Department of Medicine and Surgery, Veterans Administration. Procurable on loan from Presentation Division, Veterans Administration, Washington 25.

This film describes the steps in the development of resistive exercises for tuberculous patients who have undergone a thoracoplasty. It is pointed out that pronounced skeletal deformities often follow this operation and that resistive exercises improve the therapeutic results. Skeletal deformities are minimized or eliminated by proper exercise. Tables are shown indicating that in the group of patients who were not exercised after thoracoplasty, negative sputum developed in only 55%, whereas in the exercise group negative sputum developed in 71%. Complications were higher in the nonexercise group, and deaths during the first year following operation were also higher in this group. It is mentioned that exercise can be used without fear of harmful effects.

A team of workers including the surgeon, the ward physician, the physiatrist, and the physical therapist carry out the treatment program. The physiatrist and the physical therapist orient the patient prior to operation, and treatment is started a week prior to operation. Excellent diagrams of the operation and of the subsequent deformities are shown, and demonstrations on a skeleton indicate the various deformities. Detailed demonstrations of exercises during the recumbent stage, which lasts four to eight weeks, exercises during the semi-weightbearing stage, and exercises during the weightbearing stage are given. It is concluded that months of careful training and the guidance of a team are required before the patient is finally well enough to go home to a useful life.

The photography and narration are excellent, the demonstrations are clear, and the entire program is outlined in superb fashion. This film is recommended to thoracic surgeons, physiatrists, tuberculosis specialists, physical therapists, and all workers who are concerned with the rehabilitation of tuberculous patients.

Welton: 16 mm., color, sound, showing time 29 min. Produced in 1950 by Campus Studios, University of Washington. Procurable on rental or purchase ($190.00) from Instructional Materials Center, 401 Administration Bldg., University of Washington, Seattle 5.

Welton is a story of a town with troubles that have been the result of a failure to use modern methods of administration for the health protection of the community. General unsanitary conditions, disease outbreaks, poor water, inadequate sewage disposal, and poor community housekeeping have made the position of a county commissioner untenable. In seeking a way out, he discusses the problems with the health officer of a neighboring community in which a modern health department is being operated with all the protections commonly used by professionally qualified public health personnel in county health departments. The body of the film is an illustrated discussion of the workings of this health department as they are observed by the uninformed county commissioner from Welton. The reaction to what he sees and hears leads to the establishment of a community council, which ultimately develops a health department and a health center.

The film is designed primarily for the promotion of local councils and health departments and is intended for adult use in order to interest citizens in supporting public health activities in their community. The film could be used in schools of public health, medical schools, nursing schools, and other college units concerned with teaching public health and preventive medicine, particularly at the professional level as an illustration of a fairly well-organized health department. It would also be useful at the junior and senior high school level in social science and possibly biologic science classes. The picture is well cast, and the actor's portrayals are characteristic of the various shades of community interest and responsibility which they represent. The photography and narration are very good.

MEDICAL LITERATURE ABSTRACTS

AMERICAN

A.M.A. Arch. Dermat. and Syphilology, Chicago

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Penicillin and Artificial Fever in Neurosyphilis.—The authors treated 81 patients with neurosyphilis with a combination of fever and penicillin. Most patients were given procaine penicillin in oil containing 2% aluminum monostearate. The usual dosage was 300,000 units injected intramuscularly daily except Sundays for 20 injections. Some of the patients received a total of 9,000,000 to 10,000,000 units. Artificial fever was administered by means of the "blanket method," four or five episodes of fever with temperatures of 104 to 105 F. for five hours being given during the period of penicillin administration. The cell count, protein content and colloidal gold reaction of the spinal fluid tended to revert to normal within one year after institution of treatment. Using the Dattner-Thomas formula as a measure of activity, the authors found that 94.8% of the patients whose spinal fluid was positive before treatment showed a normal or less positive fluid after therapy. The clinical response in patients in whom the disease was symptomatic before treatment had a tendency to parallel the changes in the spinal fluid. The clinical response was satisfactory in most patients, although patients with tabes dorsalis did not benefit greatly. Severe cases of primary optic atrophy were resistant to the treatment. Four patients with mild or moderate degrees of primary optic atrophy improved satisfactorily. While penicillin therapy alone is of great value in the treatment of neurosyphilis, a combination of penicillin with fever therapy is indicated for patients with the tabetic form of dementia paralytica, for those with primary optic atrophy and for those who do not respond satisfactorily to penicillin alone.

Aureomycin in Early Syphilis.—In November 1949, the authors reported on the aureomycin treatment of 27 persons with dark-field positive syphilis. Aureomycin caused an initial satisfactory decline in the serologic titer, rid the lesions of surface spirochetes in an average of 39 hours and, when administered orally in high doses, caused a mild to moderate degree of gastrointestinal disturbance in nearly all patients. These authors now report on the treatment of 67 patients with dark-field positive syphilis, including those in the preliminary report. Sixty-two of the patients had secondary syphilis, two seropositive and three seronegative primary syphilis. An initial oral priming dose of 2 gm. was given, and this was repeated four hours later; then 1 gm. was given every four hours, day and night, until a total of 70 gm. of aureomycin had been administered in 11⅓ days. Sustained high blood levels of aureomycin were easily maintained by the oral route. Aureomycin was detectable in the cerebrospinal fluid in 50% of the patients during the multiple oral dose schedule. Preliminary results indicate that aureomycin is effective in the treatment of early syphilis; continued studies are necessary for determination of its effectiveness after longer periods. The results of aureomycin therapy were compared with those obtained in patients who were treated by the intramuscular administration of 2,800,000 or 3,400,000 units of penicillin. There were no significant differences in seronegativity rates, satisfactory results or failure rates; that is, the effect of aureomycin approaches that of penicillin.

American Journal of Medical Sciences, Philadelphia

221:239-352 (March) 1951

*Prognosis in Arterial Hypertension: Report on 117 Patients Under 53 Years of Age Followed 8 to 10 Years. A. H. Griep, G. R. Barry, W. C. Hall and S. W. Hoobler.—p. 239.
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Blood Glutathione Level and Its Response to Insulin in Diabetic and Non-Diabetic Patients and Case of Insulin Resistance. R. Caren and H. O. Carne.—p. 307.
Systemic Lupus Erythematosus: Some Cutaneous Manifestations Related to Diffuse Collagenous Diseases. B. Shaffer, G. W. James, J. P. Scully and D. M. Pillsbury.—p. 314.
Chronic Glomerulonephritis with Severe Renal Tubular Calcification. D. Rosenbaum, W. Coggeshall and R. T. Levin.—p. 319.
Epidemiology and Social Significance of Atmospheric Smoke Pollution. J. C. McDonald, P. Drinker and J. E. Gordon.—p. 325.
Listeria Monocytogenes as Cause of Disease in Man and Animals, and Its Relation to Infectious Mononucleosis from Etiological and Immunological Aspect. K. F. Girard and E. G. D. Murray.—p. 343.

Prognosis in Arterial Hypertension.—Griep and his associates present an eight to 10 year follow-up study of 117 hypertensive patients under 53 years of age with blood pressures initially exceeding 160/110. Forty-six per cent of the 117 had died from hypertensive complications, 2% from unknown causes, 6% for reasons unrelated to high blood pressure and 46% were still alive at the end of the 10 year interval. The type of hypertensive death was almost equally divided between cardiac and cerebrovascular causes. The most important factor in the prognosis was the initial presence of vascular disease, as manifested by cardiac enlargement, electrocardiographic changes, albuminuria or hypertensive encephalopathy. The effect of such complications on mortality rate was independent of the height of the blood pressure, sex distribution or other known variables. Factors of lesser individual prognostic value were (1) height of the diastolic blood pressure, (2) sex of the patient (mortality rate in males was higher by a ratio of 3 to 2) and (3) degree of hypertensive retinopathy. The age of the patient, estimated duration of hypertension and frequency and severity of headaches

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Titles marked with an asterisk (*) are abstracted.

or dizziness at the time of the initial examination did not appear to play a significant role in increasing the mortality rate. Only four cases of grade 4 fundi, so-called malignant hypertension, in association with a normal nonprotein nitrogen were included in this study. These all had the usual fatal prognosis. Blood pressure showed little tendency to change in the survivors or in those who died of hypertension. The authors emphasize the fact that the height or change in blood pressure level as a prognostic sign in hypertension is unreliable. It is important to determine the degree and progression of vascular damage in the heart, brain, kidneys and retina before mortality rates in any series of hypertensive patients can be evaluated, and this information is vital in the choice of treatment for patients with essential hypertension.

Terramycin.—The antibacterial action of terramycin was studied in 108 cases of infection, which included 28 cases of urinary tract infection, 38 cases of bacterial pneumonia, 21 cases of pertussis, 6 cases of tonsillitis, 4 cases of bacillary dysentery and 11 miscellaneous infections, including one case of amebiasis, one of typhoid and one of subacute bacterial endocarditis. Each adult patient received 1 gm. of terramycin orally every six hours; children received doses of similar magnitude according to weight. Ten adult patients with pneumonia received 250 mg. of terramycin intravenously twice daily. Toxic reactions were rare, and in only one instance were they severe enough to require discontinuation of the drug. In patients who received 1 gm. of terramycin orally, significant amounts remained in the serum after 24 hours. There was no cumulative effect with the prolonged administration of 1 gm. daily or at intervals of six hours. Clinical improvement was noted in 24 of 28 patients (85%) with urinary tract infection, and there was at least temporarily sterile urine in 20 (71%). Resistant strains of Escherichia coli were isolated from five patients before therapy. Urine cultures were sterile after terramycin treatment in two of these patients; there was pronounced clinical improvement in one, and there was no improvement in two. Drug resistance developed in two patients during treatment. One patient with Pseudomonas aeruginosa infection had a sensitive organism in vitro and responded well to therapy. Eighteen of 21 children (86%) with pertussis responded to terramycin with clinical improvement. Five of these had associated bronchopneumonia which cleared in four. The results indicated that the terramycin is as effective in the therapy of pertussis as chloramphenicol or aureomycin. Favorable results were observed in 22 of 25 cases of pneumonia in children and in all of 13 adults with bacterial pneumonia. Favorable responses were noted in patients with bacillary dysentery, tonsillitis, erysipelas and bronchiectasis. The patient with typhoid responded favorably to terramycin therapy, both during the initial attack and during relapse. In one patient with subacute bacterial endocarditis and another with amebiasis, definite clinical improvement was noted, although it was necessary to change to other chemotherapeutic agents in both instances. Two patients with mumps complicated by orchitis and one with infectious mononucleosis immediately improved when terramycin was administered.

American Journal of Medicine, New York

10:275-404 (March) 1951

*Treatment of Enterococcal Endocarditis and Bacteremia: Results of Combined Therapy with Penicillin and Streptomycin. W. C. Robbins and R. Tompsett.—p. 278.
*Effect of Penicillin and Aureomycin on Natural Course of Streptococcal Tonsillitis and Pharyngitis. W. R. Brink, C. H. Rammelkamp Jr., F. W. Denny and L. W. Wannamaker.—p. 300.
Aureomycin in Treatment of Infectious Mononucleosis. C. H. Carter and V. P. Sydenstricker.—p. 309.
*Incidence of Lipoid Pneumonia in Survey of 389 Chronically Ill Patients. B. W. Volk, L. Nathanson, S. Losner and others.—p. 316.
Multiple Myeloma Without Demonstrable Bone Lesions. R. S. Wallerstein.—p. 325.
Chronic Cyanosis. A. Selzer.—p. 334.

Combined Penicillin and Streptomycin in Enterococcic Endocarditis.—Seven patients, four men and three women, with enterococcic endocarditis were treated with combined penicillin and streptomycin. The organisms isolated from these patients all possessed the biologic characteristics of the enterococci and all gave a positive reaction with Lancefield group D antiserum. The patients received 500,000 units of crystalline penicillin intramuscularly every two hours and 0.5 gm. of streptomycin or dihydrostreptomycin intramuscularly four times daily. Two of the seven patients received combined therapy for only brief periods before death and are not considered as having had adequate trials of therapy. The remaining five were given the combined treatment for 28 to 42 days. Results were striking, with quick, permanent arrest of the infection in four. Blood cultures became negative within 48 hours after the start of therapy in all instances and remained negative. The fifth patient had a questionable relapse and subsequently died, but there was no evidence of uncontrolled infection. These results are superior to those achieved with penicillin alone. It is believed that this is the treatment of choice for enterococcic endocarditis and bacteremia. Clinical results suggest that there is a synergistic effect of the two antimicrobial drugs in vivo. In vitro experiments demonstrate a complete algebraic summation of the effects of the two drugs on the enterococci. A suggested mechanism for the summative action is the elimination by streptomycin of members of the bacterial population partially inhibited but not killed by penicillin. The combined use of antimicrobial agents appears to offer an effective method of achieving permanent arrest of some infections that are suppressed only temporarily by a single drug.

Effect of Antibiotics on Streptococcic Tonsillitis.—The relative efficacy of penicillin and aureomycin in the treatment of 475 patients with streptococcic exudative tonsillitis or pharyngitis was evaluated by clinical, bacteriologic and serologic methods. Intramuscular injections of procaine penicillin G in peanut oil with 2% aluminum monostearate were given to 197 patients. The dosage was 300,000 units on admission, 300,000 units at 48 hours and 600,000 units at 96 hours. Eighty patients received 1 gm. of aureomycin immediately, then 0.5 gm. every four hours for 24 hours and 0.25 gm. every four hours for the next three days. The total dose was 8.5 gm. in four days. There were 198 patients serving as controls and receiving no treatment. Results showed that aureomycin was somewhat more effective than penicillin in lowering the fever and causing rapid subsidence of symptoms. Neither drug exerted an appreciably beneficial effect on the abnormal physical signs. They were equally effective in inhibiting antibody formation. Penicillin usually eradicated the carrier state, whereas aureomycin failed to influence the incidence of convalescent carriers. Earaches seldom developed in patients treated with these drugs. With either drug early treatment is required if the disease process is to be materially shortened.

Lipid Pneumonia.—A survey of 389 chronically ill patients revealed 57 cases (14.6%) of lipid pneumonia diagnosed by microscopic examination of the sputum, aspiration from the lung and roentgenologic studies of the chest. Most of the patients used mineral oil as a laxative. Others had used nose drops of various oil-containing medications. The sputum of 55 patients showed lipophages or abundant amounts of free lipid material characteristic of lipid pneumonia. Aspiration from the lung also revealed typical lipid-containing macrophages. Twenty patients showed characteristic roentgenographic manifestations of lipid pneumonia. Thirteen revealed retrocardiac changes consistent with oil aspiration pneumonia in lateral, oblique and, when indicated, overexposed film studies, although the posteroanterior films did not show such lesions. A significant number of the patients had a productive cough and positive physical signs, most frequently observed over the base of the right lower lobe. Examination of the sputum and, when necessary, of material aspirated from the lung are valuable procedures for making the diagnosis of lipid pneumonia. The fact that the disease progresses after discontinuance of the incitant oily factors is possibly due to reaspiration of disintegrated lipophages.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

65:345-514 (March) 1951

Normal Cerebral Angiogram. R. W. Curry and G. G. Culbreth.—p. 345.
Contrast Myelography with Emulsified Pantopaque. W. A. Nosik. —p. 374.
Intervertebral Joint Subluxation, Bony Impingement and Foramen Encroachment with Nerve Root Changes. L. A. Hadley.—p. 377.
Skeletal Development in Infancy: Standards for Clinical Use. E. L. Reynolds and T. Asakawa.—p. 403.
Intravenous Nephrography: Method of Roentgen Visualization of Kidney. H. S. Weens, H. M. Olnick, D. F. James and J. V. Warren.—p. 411.
*Treatment of Tumors of Thyroid with Divided Doses of Radioactive Iodine. G. Crile Jr.—p. 415.
Theory and Methods of Radioautographic Localization of Radioelements in Tissues. J. Gross, R. Bogoroch, N. J. Nadler and C. P. Leblond. —p. 420.
*Self-Healing Epithelioma of Skin. A. A. Charteris.—p. 459.
Effect of Physical and Chemical Factors on Phagocytosis in Presence of Irradiated Human Blood and Plasma. J. N. Sarian.—p. 465.

Treatment of Thyroid Tumors with Radioactive Iodine.—Experience with the treatment of 30 patients with nodular goiter associated with hyperthyroidism showed that the goiters regressed in size and the associated hyperthyroidism was controlled better when multiple small doses of I^{131} were given at intervals of six to eight weeks than when single larger doses were used. Radioautographs showed that I^{131} is taken up irregularly by nodular goiters; most of a given dose, regardless of its size, may be concentrated in small, actively functioning areas. Large areas not functioning actively may receive little or no radiation from a single dose of I^{131}. After the most active areas are destroyed or inactivated by a small dose of I^{131} it appears that the less active areas can in turn be inactivated or destroyed by subsequent small doses. Experience in nine patients with papillary carcinoma of the thyroid who were given tracer doses of I^{131} before operation showed that papillary carcinomas of the thyroid tend to take up I^{131} in an irregular manner, as does nodular goiter. One patient, aged 31, with papillary carcinoma of the thyroid was given a total of 335 mc. of I^{131} in eight doses in the course of 18 months and an additional 80 mc. of I^{131} making a total of 415 mc. The primary tumor and its cervical metastases disappeared in response to these multiple doses of I^{131}. If the tumor does not take up I^{131}, and if normal thyroid function has been abolished, the resultant increase in thyrotropic hormone may stimulate growth of the tumor. This could be avoided by the administration of desiccated thyroid in doses of 3 grains (0.20 gm.) or more daily.

Self-Healing Epithelioma of the Skin.—Self-healing epithelioma of the skin is a neoplasm that is microscopically identical with well differentiated squamous carcinoma but that shows a tendency to spontaneous healing. A man aged 69 gave a history of recurrent growths on the skin since the age of 23 that healed with much scarring. One of these, an epithelioma on the perineal skin of six months' duration, was removed. Pathological examination showed highly differentiated epithelioma associated with chronic inflammatory change, fibrosis and regressive changes in the invading tumor. Two months later two active lesions were observed on the right forearm and one near the left wrist. Clinically, these were obvious squamous epitheliomas, but one of them showed partial healing, with scar formation. Biopsy of this lesion showed well differentiated, invasive squamous carcinoma and much round cell infiltration. The healed end of the lesion showed fibrosis of the cutis with a rather thin and atrophic epidermis. No attempt was made to excise the lesion, and healing was complete four months later. Contact with the patient was lost, but eventually the author was informed that the patient had died from rapid and extensive recurrence of the anal lesion two and a half years after the operation. Thus the capacity of healing had failed eventually in this patient. Of the patient's five sons, three, aged 21, 29 and 38, were affected in the same way. All three were studied. Lesions had developed on the ears, face, wrists and legs. Capacity for healing was obvious in all three for a certain time, as evidenced by many scars, but was feeble or absent by the time they came under observation. Almost all the lesions appeared on the exposed surface of the body, but there was no obvious physical or occupational cause to account for this, except for the possibility that normal ultraviolet radiation may play some part. Areas treated by roentgen irradiation remained inactive, but further lesions developed on the face. It is probable that surgical measures will be more helpful, although any method of treatment will present difficulties owing to the awkward distribution of the lesions and the possibility of new ones appearing.

Arizona Medicine, Phoenix

8:1-88 (Feb.) 1951

Plastic Surgery for General Surgeon. W. R. Manning.—p. 25.
Strangulated Inguinal Hernia: Study of 93 Cases. K. B. Brilhart.—p. 33.
Pulmonary Denervation for Intractable Bronchial Asthma. G. D. Boone. —p. 37.
Full Term Abdominal Pregnancy with Intestinal Obstruction. H. H. Brainard.—p. 39.

Bulletin of Johns Hopkins Hospital, Baltimore

88:197-290 (March) 1951

Further Study of Effect of Adrenocorticotropic Hormone (ACTH) upon Experimental Cardiovascular Lesions Produced by Anaphylactic Hypersensitivity. I. L. Bennett Jr., M. Berthrong and A. R. Rich.—p. 197.
Myocardial, Hepatic and Renal Damage Resulting from Para-Aminobenzoic Acid Therapy. Observations in Human Cases and Experimental Animals. A. H. Cruickshank and G. W. Mitchell Jr.—p. 211.
*Single Ventricle with Rudimentary Outlet Chamber: Case Report. E. C. Lambert.—p. 231.
Peculiar Pneumonia Associated with Retinal Cytoid Bodies. P. A. Tumulty, M. Berthrong and A. M. Harvey.—p. 239.
Efficacy of Modified Oral Penicillin Therapy of Pneumococcal Lobar Pneumonia. R. Austrian, G. S. Mirick, D. E. Rogers and others. —p. 264.
*Treatment of Pneumococcal Lobar Pneumonia with Oral Aluminum Penicillin. J. C. Harvey and G. S. Mirick.—p. 270.

Single Ventricle with Rudimentary Outlet Chamber.—The occurrence of a single ventricle with a diminutive outlet chamber is rare. It is thought to represent an early arrest in cardiac development, with failure of formation of the interventricular septum and persistence of the bulbus cordis as a rudimentary outlet chamber. A case is reported in a 17 year old male, who was first seen in March 1948 because of dyspnea and cyanosis, which he had had since the age of 13 weeks. His growth and development were delayed. He did not walk until 2½ years of age. He was small and underweight. His mental development was normal. As he grew older his limitations were more noticeable, so that when he was first seen in the clinic he was able to walk only 100 yards before becoming short of breath and fatigued. The results of physical, laboratory, fluoroscopic, electrocardiographic and angiocardiographic examinations are described. An exact diagnosis could not be made, but, on the assumption that the basic malformation was a complete transposition of the great vessels, an auricular septal defect was created to allow a better exchange of oxygenated blood within the heart. Following the operation, there was definite improvement. The patient was less cyanotic and dyspneic. A right hemothorax developed that required tapping on several occasions, but, by the fifth postoperative day, the patient appeared to be doing well. On the seventh postoperative day, following a thoracentesis, dyspnea developed, the patient went into shock and died within 10 hours. The relation between the anatomic findings on necropsy and the clinical features and the data obtained from cardiac catheterization and angiocardiography are discussed. Death was probably caused by a massive hemothorax.

Oral Penicillin in Lobar Pneumonia.—Fifty patients with pneumococcal lobar pneumonia were treated with penicillin. Thirty-seven received only aluminum penicillin by mouth, and 13 received intramuscular penicillin in addition to or instead of oral penicillin. Those treated by mouth were given 300,000 units every 12 hours until they were afebrile for 72 hours. The response to oral therapy alone was entirely satisfactory. Actually, there was a higher incidence of complications or death in the 13 parenterally treated patients, who received crystalline penicillin G. However, this may be explained by the greater severity of the disease in that group. So that the possible hazard of delayed penicillin absorption by severely sick patients may be avoided, an initial parenteral injection followed by continued oral therapy is recommended.

Cancer Research, Chicago

11:153-232 (March) 1951. **Partial Index**

Effect of Carcinogenic and Other Related Compounds on Autoxidation of Carotene and Other Autoxidizable Systems. E. B. Lisle.—p. 153.
Evaluation of Bolen Test as Screening Test for Malignancy. B. O. Hawk, G. E. Thoma and J. J. Inkley.—p. 157.
Partial Reversal of Anti-Leukemic Action of Folic Acid Antagonists by Vitamin B_{12}. H. E. Skipper, J. B. Chapman and M. Bell.—p. 161.
Effect of Regeneration on Growth Potentialities in Vitro of Rat Liver at Different Ages. A. D. Glinos and E. G. Bartlett.—p. 164.
Quantitative Evaluation of Growth Rates in Tumors Before and After Radiation. A. Goldfeder.—p. 169.
Alkaline Phosphatase Substrate Specificities in Cultured Normal and Malignant Cells of Mouse, Rat, and Fowl. J. J. Biesele and A. Y. Wilson.—p. 174.
Influence of Diet on Relative Incidence of Eye, Mammary, Ear-Duct, and Liver Tumors in Rats Fed 2-Acetylaminofluorene. R. W. Engel and D. H. Copeland.—p. 180.
Distribution and Excretion of Stilbamidine-C^{14} in Mice. J. C. Reid and J. C. Weaver.—p. 188.
Influence of Dietary Fat and Riboflavin on Formation of Spontaneous Hepatomas in Mouse. H. Silverstone and A. Tannenbaum.—p. 200.
Further Evidence on Mode of Action of 8-Azaguanine (Guanazolo) in Tumor Inhibition. G. W. Kidder, V. C. Dewey, R. E. Parks Jr. and G. L. Woodside.—p. 204.
Study on Biologic Activity of Transplanted Granulosa-Cell Tumor in Castrate C57 Mice. E. S. Crelin and J. T. Wolstenholme.—p. 212.
Study of Metabolism of 20-Methylcholanthrene. W. G. Dauben and D. Mabee.—p. 216.
Enzyme Alterations Associated with Mouse Liver Degeneration and Regeneration After Single Carbon Tetrachloride Feeding. K. K. Tsuboi and R. E. Stowell.—p. 221.
Nucleic Acid Inhibiting Action of 4-Amino-N^{10}-Methylpteroylglutamic Acid in Mice with Sensitive and Resistant Strain of Leukemia. H. E. Skipper and J. H. Burchenal.—p. 229.

Connecticut State Medical Journal, Hartford

15:187-292 (March) 1951

Endometrial Carcinoma: Study of 214 Cases from Hartford Hospital. S. B. Marshall.—p. 187.
Renal Hypertension: Review of Its Current Status. F. C. Collier.—p. 195.
Herpes Zoster Encephalitis—Report of Case with Recovery. J. H. Foster and A. H. Jackson.—p. 199.
*Acute Gold Dermatitis Successfully Treated with BAL. N. Kirsch.—p. 201.
Delayed or Chronic Extradural Hematoma. G. S. Parrella.—p. 204.
Administration of Public Mental Health Programs. R. H. Felix.—p. 207.
Compulsory Health Insurance or Socialized Medicine. A. J. Robinson.—p. 214.

Gold Dermatitis Treated with BAL.—This paper presents the history of a woman who was given intravenous injections of gold sodium thiosulfate for arthritis. After the third injection she complained of a severe frontal headache and "noises" in her head. Several hours later she noted an eruption on both palms, which shortly spread to involve the rest of her body. She felt very warm and thirsty. On the next day the eruption covered her body and her temperature was 103.4 F. She was hospitalized. Thirty hours after onset of symptoms, treatment was instituted with BAL (2, 3-dimercaptopropanol, British Anti-Lewisite) in a dose of 1.8 cc. of a 10% solution per injection. This was given intramuscularly every four hours for six doses for the first two days. Thereafter, the patient received one injection in the morning and one at night for the remainder of her hospital stay. Five days after admission, the eruption had cleared completely, including even the petechial rash. All the patient's complaints had disappeared; she was ambulant and anxious to be discharged. The toxic, allergic, cumulative effects of gold on the skin, hemopoietic system, nervous and gastrointestinal tracts and renal and hepatic organs are discussed. The probable mechanism of the action of BAL is reviewed. Although it is a powerful antidote for toxic reaction from gold, continuous vigilance is still paramount.

Florida Medical Association Journal, Jacksonville

37:617-674 (April) 1951

Dicumarol as Indicator of Secondary Disease. M. S. Saslaw and A. E. Rosenberg.—p. 631.
Infertility in General Practice. J. H. Nodine.—p. 633.
Rhinoplasty. B. G. Pollock.—p. 636.
Veterinary Public Health. J. E. Scatterday.—p. 639.
Glysennid: Results of Its Use in 51 Cases. R. Herz.—p. 641.

Illinois Medical Journal, Chicago

99:1-164 (March) 1951

Urological Problems During Pregnancy. H. L. Kretschmer.—p. 128.
Xylocaine for Regional Anesthesia: Report on Results in Caudal Block Anesthesia. G. Haglund and W. A. Conroy.—p. 132.
Practical Laboratory Evaluation of Renal Function. J. P. Simonds.—p. 135.
Surgical Treatment of Gastric Ulcer in the Aged. M. J. Gullickson, R. G. Smith and D. J. Largo.—p. 140.
The Hearts of Athletes. T. K. Cureton.—p. 143.
Case of Spontaneous Evisceration Through Umbilical Hernia. I. F. Stein Jr. and F. H. Straus.—p. 147.
Acute Hemolytic Anemia Secondary to High Titer of Cold Agglutinins in Case of Primary Atypical Pneumonia. J. K. Freilich and L. Lemberg.—p. 150.

Indiana State Medical Assn. Journal, Indianapolis

44:173-268 (March) 1951

Arthritis—Orthopedic Aspects. J. N. Garber.—p. 189.
Ocular Fundus Manifestations of Hypertension and Diabetes. M. Mann.—p. 192.
Intravenous Pituitary Drip. C. O. McCormick Sr.—p. 194.
Critical Evaluation of Parenteral Protein Therapy. D. G. Bock.—p. 195.
Herpes Gestationis: Case Report. H. H. Rodin and R. Bryan.—p. [illegible]

Industrial Medicine and Surgery, Chicago

20:99-134 (March) 1951. **Partial Index**

Psychological Preparation of the Amputee. H. H. Kessler.—p. 107.
Medicolegal and Social Problems in Permanent Disability Cases. A. St. Clair.—p. 109.
Meeting the Shortcomings of the Periodic Physical Examination. S. C. Franco.—p. 113.
Use of Morphine-Scopolamine in Surgery. R. Householder.—p. 115.
*Seminars in Industrial Psychiatry. W. D. Ross and D. J. Lauer.—p. 119.
Human Relations and Accident Prevention. L. E. Himler.—p. 121.
Antibiotics. G. F. O'Brien.—p. 124.

Seminars in Industrial Psychiatry.—This paper describes one way in which the skills of psychiatry are being made available for the solution of practical problems in industry. It is a report of a teaching project being conducted in industrial plants in Cincinnati under the auspices of the department of psychiatry and the institute of industrial health of the University of Cincinnati. The project is designed primarily for the postgraduate fellows in industrial medicine. Since the fall of 1948 conferences have been held weekly in two plants. These conferences are attended by the medical director, the psychiatrist, either the personnel director or plant manager and the industrial medical fellows. The procedure of these conferences is described, and it is suggested that this method of psychiatric consultation and teaching will prove valuable in the promotion of mental hygiene in industry.

Journal of Allergy, St. Louis

22:1-98 (Jan.) 1951

Oral Cortisone in Intractable Bronchial Asthma: Preliminary Report. E. Schwartz.—p. 1.
*Allergy as Factor in Childhood Sinobronchitis. W. C. Price and I. A. Solow.—p. 4.
Hospitalization of the Asthmatic Patient: Survey of 434 Cases of Bronchial Asthma Admitted to Medical and Pediatric Services of the New York Hospital from 1933 to 1948. H. S. Baldwin, P. F. deGara and A. D. Spielman.—p. 10.
Antihistaminic Properties of Local Anesthetics and Anesthetic Properties of Antihistaminic Compounds. S. W. Landau, W. A. Nelson and L. N. Gay.—p. 19.
Newer Antihistaminics: IV. Some Pharmacologic and Therapeutic Effects of Beta-(p-Bromo-Benzhydryloxy)-Ethyldimethylamine Hydrochloride, Derivative of Diphenhydramine Hydrochloride. T. H. McGavack, A. M. Shearman, J. Weissberg and others.—p. 31.
Use of Oleic Acid to Inhibit Release of Histamine in Vitro. W. C. Spain and M. B. Strauss.—p. 47.
Aerosol Therapy in Practice of Allergy: Clinical and Bacteriological Evaluation of Antibiotics. S. J. Prigal.—p. 50.
*Hypersensitivity to Streptomycin. A. C. Cohen and G. C. Glinsky.—p. 63.
Streptomycin Dermatitis. H. S. Mitchell.—p. 71.
Aspirin Sensitivity—Experimental Studies. A. R. Feinberg and S. Malkiel.—p. 74.
Variations in Circulating White Blood Cells After Specific and Nonspecific Stimuli. T. L. Squier.—p. 82.

Allergy in Sinobronchitis.—It has been widely recognized that in children there is a relationship between sinus disease and chest disease. More recently it has been suggested that sinobronchitis is a complicating factor in childhood asthma. In a previous study

Price and Solow had been concerned with the prevalence of sinobronchitis among 384 children whose symptoms of chronic respiratory infection necessitated roentgen studies of the sinuses and lungs. In a control group of 26 patients with no respiratory symptoms roentgen evidence of sinobronchial disease was present in only two (7.7%), whereas of 331 patients who had chronic respiratory symptoms 37.4% had demonstrable sinobronchitis. From among this latter group were separated the records of 62 patients, who had been studied in the hospital allergy clinic, and in whom the admitting physician had found a family or personal history of acute or chronic allergy manifested specifically as urticaria, asthma, hay fever, eczema, tracheobronchitis or food sensitivity characterized by angioneurotic edema or gastrointestinal disturbance. In summarizing their observations the authors say that 64% of allergic children 5 years of age or under who were hospitalized for chronic respiratory disease had roentgenographic evidence of sinobronchial disease. Sinobronchitis was noted in 57% of the allergic children who had positive skin test reactions. Those who had a familial history of allergy together with positive reactions to skin tests showed susceptibility to lower respiratory tract infection. The laboratory procedure of examining smears of the posterior pharyngeal secretions for eosinophils (indicative of an allergic response) proved 84% accurate among 26 pediatric patients included in this study.

Hypersensitivity to Streptomycin.—This report is concerned with the development of hypersensitivity to streptomycin in 447 patients who were treated with it and with four cases of contact dermatitis in nurses who were handling streptomycin. One of these four began after six weeks of exposure, the others after three months or more. It was found that hypersensitivity is relatively much commoner in persons who handle the drug than in those who ingest it. Hypersensitivity may manifest itself as drug fever, a maculopapular rash, urticaria or exfoliative dermatitis. It usually appears only after prolonged and intimate contact. Before streptomycin therapy is started information on possible contact with the drug should be obtained and, if necessary, patch tests or intradermal tests should be done. The administration of a full therapeutic dose to a person who has become sensitized (usually a nurse or a pharmaceutical worker) may be disastrous and even fatal. Patients who are hypersensitive to streptomycin must be desensitized or they cannot receive the drug. Personnel who have become hypersensitive must either be desensitized or must give up all contact with streptomycin. Two of the aforementioned nurses who had become sensitized could be desensitized, whereas the other two had to avoid further contact with the drug.

Journal of Bacteriology, Baltimore

61:243-378 (March) 1951. Partial Index

Studies on Herpes Simplex Virus: I. Stability and Preservation of Egg-Adapted Herpes Simplex Virus. R. S. Speck, E. Jawetz and V. R. Coleman.—p. 253.
Similarity in Action of Bacitracin and Penicillin on Staphylococcus. T. F. Paine Jr.—p. 259.
Comparative Activities of Pantethine, Pantothenic Acid, and Coenzyme A for Various Microorganisms. J. A. Craig and E. E. Snell.—p. 283.
*Heat-Labile Brucella-Agglutinin-Blocking Factor in Human Sera. V. T. Schuhardt, H. W. Woodfin and K. C. Knolle.—p. 299.
Metabolism of Species of Streptomyces: IV. Effect of Substrate on Endogenous Respiration of Streptomyces Coelicolor. V. W. Cochrane and M. Gibbs.—p. 305.
Some Physical Factors That Influence Survival of Brucella Abortus During Freeze-Drying. R. S. Hutton, R. J. Hilmoe and J. L. Roberts. —p. 309.
Formation and Development of Large Bodies in Proteus Vulgaris OX-19. H. Stempen and W. G. Hutchinson.—p. 321.
Mutability of Bacillus Anthracis Spores During Germination. R. B. Mefferd Jr. and O. Wyss.—p. 357.

Brucella-Agglutinin Blocking Factor in Human Serum.—The occurrence of erythroblastotic disease in Rh-positive infants born of Rh-negative mothers whose serum fails to show the presence of Rh agglutinins has refocused attention on "nonagglutinating," "incomplete" or "blocking" antibodies that prevent agglutination in test serums. In an effort to determine the practical significance and the possible theoretical implications of the Brucella agglutinin-blocking phenomenon, Schuhardt and associates tested 521 human serums for agglutinins for Brucella abortus and 498 of these for Brucella agglutinin blocking. Four hundred and eighty of the serums were negative for both agglutinins and blocking activity. The remaining 18 showed Brucella agglutinin blocking at titers of 1:40 to 1:320. The blocking effect was completely eliminated when the serums were heated at 56 C. for 30 minutes in all but three serums and was reduced in these three. In nine serums the destruction of the blocking effect resulted in the unmasking of Brucella agglutinins at titers of 1:40 to 1:80. The developing test proved that the Brucella agglutinin blocking is due to an antigenic component of human serum, probably a nonagglutinating antibody.

Journal of Clinical Investigation, Cincinnati

30:125-236 (Feb.) 1951

Effect of Diabetes and Insulin on Maximum Capacity of Renal Tubules to Reabsorb Glucose. S. J. Farber, E. Y. Berger and D. P. Earle. —p. 125.
Haemolytic Factor in Anaemia of Lymphatic Leukaemia. G. M. Brown, S. M. Elliott and W. A. Young.—p. 130.
Precipitable Iodine of Serum in Normal Pregnancy and Its Relation to Abortions. E. B. Man, M. Heinemann, C. E. Johnson and others. —p. 137.
Precipitable Iodine of Serum in Pregnancy Complicated by Disorders of Thyroid. W. W. Engstrom, D. M. Kydd, J. P. Peters and E. B. Man. —p. 151.
Anemia of Infection: XIII. Studies on Experimentally Produced Acute Hypoferremia in Dogs and Relationship of Adrenal Cortex to Hypoferremia. G. E. Cartwright, L. D. Hamilton, C. J. Gubler and others. —p. 161.
*Observations During ACTH and Cortisone Administration to Patient with Longstanding Panhypopituitarism and Rheumatoid Arthritis. C. E. Schrock, R. F. Sheets and W. B. Bean.—p. 174.
Anemia of Thermal Injury: I. Studies of Pigment Excretion. G. W. James III, O. J. Purnell and E. I. Evans.—p. 181.
Id.: II. Studies of Liver Function. G. W. James III, O. J. Purnell and E. I. Evans.—p. 191.
Effect of Desoxycorticosterone Glucoside upon Cerebral Blood Flow and Metabolism of Human Subjects. R. C. Bentinck, G. S. Gordon, J. E. Adams and others.—p. 200.
Relation Between Protein Consumption and Diurnal Variations of Endogenous Creatinine Clearance in Normal Individuals. T. Addis, E. Barrett, L. J. Poo and others.—p. 206.
Cardiac Output in Patients with Arteriovenous Fistulas. J. V. Warren, J. L. Nickerson and D. C. Elkin.—p. 210.
Effect of Temporary Occlusion of Arteriovenous Fistulas on Heart Rate, Stroke Volume, and Cardiac Output. J. L. Nickerson, D. C. Elkin and J. V. Warren.—p. 215.
Blood Volume in Patients with Arteriovenous Fistulas. J. V. Warren, D. C. Elkin and J. L. Nickerson.—p. 220.
*Effect of Adrenocorticotrophic Hormone on Children with Nephrotic Syndrome: II. Physiologic Observations on Discrete Kidney Functions and Plasma Volume. H. L. Barnett, C. W. Forman, H. McNamara and others.—p. 227.

ACTH and Cortisone in Panhypopituitarism with Arthritis.—Schrock and associates observed the effect of administration of pituitary adrenocorticotropic hormone (ACTH) and cortisone on the moderately active rheumatoid arthritis of a patient with panhypopituitarism. The patient was a woman, aged 46. The authors hoped to obtain information concerning: 1. What direct action, if any, pituitary adrenocorticotropic hormone might have on the clinical and laboratory observations of rheumatoid arthritis, inasmuch as adrenal cortical function was apparently absent. 2. Whether return of adrenal cortical activity would become apparent after pituitary adrenocorticotropic hormone administration. 3. The response to cortisone. Partial adrenal cortical activity was demonstrated during pituitary adrenocorticotropic hormone administration. The effect on the arthritis was equivocal after administration of pituitary adrenocorticotropic hormone but was definite after administration of cortisone. Clinical, chemical and hematological data are in agreement with present concepts of the metabolic and therapeutic properties of pituitary adrenocorticotropic hormone and cortisone. There was clinical and laboratory evidence that some bit of adrenal cortex remained and was responsive to stimulation by pituitary adrenocorticotropic hormone. This response, mediated through the adrenal glands, was shorter and less intense than the general response to substituted cortisone.

Adrenocorticotropic Hormone in the Nephrotic Syndrome.—In children with the nephrotic syndrome several agents, including pituitary adrenocorticotropic hormone (ACTH), may produce diuresis similar to that sometimes occurring spontaneously. This paper reports a study of the mechanism of diuresis produced by pituitary or adrenocortical hormones. An attempt was made to disclose consistent changes that might precede diuresis and, to this end, relevant physiological measurements were made, including blood volume, discrete kidney functions, concentrations of electrolytes and nitrogenous constituents of serum, metabolic balances of electrolytes and nitrogen, serum lipid fractions, and urinary protein and sediment. Observations were made on eight children with the nephrotic syndrome. It was found that the diuresis occurring during or following administration of pituitary adrenocorticotropic hormone was usually associated with improvement in kidney function. Repeated diuresis in children with initially reduced function may be associated with progressive increases in rates of glomerular filtration to normal values. These observations demonstrate a potentiality for improvement in function beyond that commonly considered possible in the nephrotic syndrome of many months' duration. It is believed that these changes are not peculiar to diuresis associated with pituitary adrenocorticotropic hormone administration but may accompany spontaneous or other types of induced diuresis. The studies suggest that increases in plasma volume and glomerular filtration rate are associated with the mechanism of diuresis in children with the nephrotic syndrome.

Journal of Experimental Medicine, New York

93:197-296 (March) 1951

Relationship Between Serum Antibodies and Subclinical Infections with Poliomyelitis Virus. G. C. Brown and J. D. Ainslie.—p. 197.
Behavior of Residual Axons in Partially Denervated Muscles of Monkey. M. V. Edds Jr. and W. T. Small.—p. 207.
Desoxycorticosterone Acetate and Wound Healing. C. L. Pirani, R. C. Stepto and K. Sutherland.—p. 217.
Studies on Non-Hemolytic Streptococci Isolated from Respiratory Tract of Man: Antigenic Basis for Type Specific Reactions with Streptococcus Salivarius and Non-Levan-Forming Streptococci. F. L. Horsfall Jr. —p. 229.
Pathogenesis of Coxsackie Virus Infection: Multiplication of Virus and Evolution of Muscle Lesion in Mice. J. L. Melnick and G. C. Godman. —p. 247.
Pathogenesis of Infection with Virulent (CG 179) and Avirulent (B) Strain of Newcastle Disease Virus in Chicken. D. T. Karzon and F. B. Bang.—p. 267.

Maine Medical Association Journal, Portland

42:67-112 (March) 1951

*Differential Diagnosis of Gastric Lesions from Cells Obtained by Stomach Aspiration. J. Porter, J. Spencer, E. R. Blaisdell and others.—p. 67.
Respiratory Complications of Acute Poliomyelitis: Observation of 149 Cases at a Community Hospital. S. Curelop and H. A. Braun.—p. 72.
ACTH and the General Practitioner. E. A. Brown.—p. 75.
Surgical Treatment of Lesions of Lower Esophagus and Gastric Fundus. E. H. Drake.—p. 78.
*Fatal Pancytopenia Following Anti-Histamine Administration. C. R. Glassmire.—p. 83.
Fractures of the Femoral Neck in Childhood. R. G. Livingstone.—p. 86.
Clinical Experience with Chlor-Trimeton. I. W. Schiller, F. C. Lowell and W. Franklin.—p. 89.
Use of Pregnenolone in Rheumatoid Arthritis. J. G. Bruce.—p. 92.
Bacterial Nasal Allergy. A. L. Maietta.—p. 94.
Planning—A Must in Today's Hospital Nursing Service. D. M. Rosenberger.—p. 96.
Point Rating System of the American College of Surgeons and the Hospital. H. K. Spangler.—p. 97.
Need for Development of Diagnostic and Out-Patient Services. F. E. Wing.—p. 99.

Differential Diagnosis of Gastric Lesions.—Cytological examination of gastric contents was performed in 54 patients. A set period was permitted to elapse between the collecting and fixing of the specimen. The Papanicolaou stain was then employed. The diagnosis of carcinoma of the stomach was definitely established by laparotomy or autopsy in 11 and on clinical and roentgenologic grounds in four. Carcinoma was excluded in the remaining 39 patients, in 22 by laparotomy or autopsy and in 17 on clinical and roentgenologic grounds. Of the 15 patients with proved carcinoma, smears were positive in eight (53.3%). One smear was doubtful, while six were false negative. Of the 39 patients without cancer of the stomach, 34 (87.2%) had negative smears. The smears of four were doubtful, while one had false positive smears. The Papanicolaou procedure appears to be chiefly of value as corroborative evidence for clinical and roentgenologic observations. The presence of tumor cells in a smear is of significance, and exhaustive study should be done to exclude cancer of the stomach. The relative high incidence of false negative smears indicates definitely that cancer should not be ruled out solely on the absence of tumor cells in a smear.

Fatal Pancytopenia Following Antihistamine Administration.—The occurrence of pancytopenia with death after the use of antihistamine drugs in a man aged 65 with chronic eczema is reported. The patient used between 3 and 4 oz. (90 and 120 gm.) of tripelennamine (pyribenzamine®) hydrochloride cream, and he also occasionally used pyranisamine (neo-antergan®) in doses of 25 mg. three times daily. Three months later, a diagnosis of thrombophlebitis of the left femoral vein was made and the patient was hospitalized for bishydroxycoumarin (dicumarol®) therapy. Routine blood cell counts were made, showing a red cell count of 2,940,000 and a white cell count of 1,500. Within 11 days, the thrombophlebitis became entirely inactive but the blood cell count had not risen, despite repeated blood transfusions. Finally petechial hemorrhages appeared; the patient's white cell count fell to 300, and he died. Necropsy revealed that the spaces in the bone marrow normally occupied by hematopoietic tissues were largely replaced by fat with numerous red blood cells and only a scattering of nucleated cells, consisting chiefly of lymphocytes and a few plasma cells and macrophages. The lymph nodes were relatively atrophic, with some fat replacement in which the sinusoids stood out quite clearly. These observations were characteristic of aplastic anemia. It is felt that the prolonged antihistamine medication must be considered as a possible etiological factor. This is believed to be the first such case report, although at least five nonfatal cases of agranulocytosis have been reported previously. It is felt that the antihistamines should be used only under the careful supervision of a physician and that routine blood cell counts should be done.

Medical Annals of District of Columbia, Washington

20:119-180 (March) 1951

Spinal Fusion by Internal Fixation for Tuberculous Patients. M. C. Cobey.—p. 119.
Medical Management of Liver Disease. H. J. Zimmerman.—p. 122.
Some Basic Features and Differential Diagnosis of Nephrotic Syndrome. E. D. Robin.—p. 130.
Seborrhea-Acne Complex: Diagnosis and Treatment by General Practitioner. M. M. Robinson.—p. 138.
Xanthomatosis Tuberosum: Report of Case with Vascular Complications. W. E. Wacker, E. D. Robin and J. F. Fazekas.—p. 145.

Medicine, Baltimore

30:1-80 (Feb.) 1951

Gaucher's Disease: Review, and Discussion of 20 Cases. C. Reich, M. Seife and B. J. Kessler.—p. 1.
Myocardial Metabolism in Congestive Heart Failure. R. E. Olson and W. B. Schwartz.—p. 21.
Electrocardiogram in Addison's Disease. W. Somerville, H. D. Levine and G. W. Thorn.—p. 43.

Military Surgeon, Washington, D. C.

108:181-286 (March) 1951. Partial Index

Surgery of World War III. W. F. MacFee.—p. 181.
Place of Professional Consultant in Reserve. F. B. Berry.—p. 185.
World Medical Association. L. H. Bauer.—p. 187.
Management of Burn Casualties. H. A. Burnett.—p. 201.
Derivatives of Thalamus Dorsalis and Epithalamus in Human Brain: Their Relation to Cortical and Other Centers. H. Kuhlenbeck.—p. 205.

New England Journal of Medicine, Boston

244:315-346 (March 1) 1951

*Khellin in Treatment of Angina Pectoris. H. L. Osher, K. H. Katz and D. J. Wagner.—p. 315.
Present Management of Varicose Veins. D. W. Barrow.—p. 321.
Pregnenolone in Rheumatoid Arthritis. J. R. Dordick, M. E. Ehrlich, S. Alexander and M. Kissin.—p. 324.
Hypopotassemia Following Bilateral Ureterosigmoidostomy. W. C. L. Diefenbach, S. C. Fisk and S. B. Gilson.—p. 326.
Medicine as Social Instrument: Preventive Medicine. W. G. Smillie. —p. 329.

Khellin in Angina Pectoris.—Khellin, a pure crystalline derivative of the eastern Mediterranean plant Ammi visnaga, has been reported to have a powerful and prolonged coronary vasodilator effect in animals. Previous clinical studies indicate that it is of value in the treatment of angina pectoris. In this study, for evaluation of therapy in angina pectoris with khellin, patients with well established angina pectoris were selected from the cardiac clinic of the Boston City Hospital. Carefully controlled observations were made on 26 men and six women, ranging in age from 49 to 81 years. Of the 32 patients, 26 had a decrease in frequency and severity of anginal pains, a drop in glyceryl trinitrate requirements and an increase in exercise tolerance. This improvement was considered pronounced in 11 patients, moderate in 11 and slight in four; the remaining six showed no improvement. The average therapeutic dose was 160 mg. daily; no serious toxic reactions were encountered. The high proportion of favorable results, together with the striking degree of improvement frequently observed, led to the conclusion that khellin, properly used, is a safe and effective drug for the treatment of angina pectoris.

New Jersey Medical Society Journal, Trenton

48:91-136 (March) 1951

- Carcinoma of Breast: Certain Aspects of Five-Year Experience in a General Hospital. J. L. Work.—p. 94.
- Congenital Heart Disease: III. Surgical Considerations. C. P. Bailey, A. D. Crecca, D. F. Downing and others.—p. 96.
- Social Aspect of Epilepsy. E. Revitch.—p. 100.
- Convulsive Toxemia of Pregnancy Associated with Intracranial Hemorrhage. H. Oren.—p. 102.
- Malignant Lesions of Colon. H. W. Jack.—p. 104.
- Technic of Radical Mastectomy. D. T. Bosch and L. G. Beisler.—p. 112.
- Angina of Effort: Its Treatment with Crystalline Khellin. H. L. Drezner and S. Horoschak.—p. 116.

North Carolina Medical Journal, Winston-Salem

12:85-128 (March) 1951

- Some Comments on Regionalization of Hospitals. S. Proger.—p. 85.
- Situational Pattern in Childhood Injury: I. Data Derived from North Carolina Newspapers. B. Woodhall.—p. 89.
- From Laissez Faire to Regimentation and Back Again: Pediatric Pendulum. F. H. Richardson.—p. 93.
- Association of Migratory Thrombophlebitis with Carcinoma. F. B. Gross Jr., D. G. Jaehning and W. G. Coker.—p. 97.
- Operative Aspects of Female Sterility. V. H. Turner and C. D. Davis.—p. 101.
- Problem of Infectious Diseases in Early Pregnancy as Cause of Congenital Malformations. J. B. Caldwell and D. L. Whitener.—p. 104.
- Measles Encephalitis: Report of Case Following Adequate Therapy with Globulin. G. Smith.—p. 107.
- Technique for Administration of Topical Anesthesia in Endoscopy. M. R. Himalstein.—p. 109.

Postgraduate Medicine, Minneapolis

9:193-278 (March) 1951

- Mask of Sanity. H. M. Cleckley.—p. 193.
- Brain Tumors: Study of Postoperative Results and Survival Periods. A. W. Adson, H. J. Svien and H. W. Dodge Jr.—p. 198.
- Obstetric Significance of Posterior Occiput Position. J. L. McKelvey and E. J. Diefenbach.—p. 211.
- Sympathectomy in Treatment of Buerger's Disease. L. T. Palumbo.—p. 215.
- Treatment of Vaginitis and Cervicitis by General Practitioner. K. J. Karnaky.—p. 220.
- Effects of Emphysema of Lungs on Cerebral and Coronary Circulation. W. S. McCann.—p. 225.
- *Experience with Cortisone in Treatment of Rheumatoid Arthritis. P. J. Bilka and G. Cader.—p. 231.

Cortisone in Rheumatoid Arthritis.—Thirty-six patients with rheumatoid arthritis, 21 women and 15 men, were treated with cortisone. Twenty-six patients had severe, seven had moderately severe and three had mild rheumatoid arthritis. Patients were usually started on 150 to 200 mg. of cortisone for the first day or two, after which the dose was reduced to 100 mg. daily and continued for two to three weeks for most patients and then gradually tapered off. The drug was administered by intramuscular route or by mouth. Total doses of cortisone ranged from 0.8 to 9.98 gm., with most patients receiving 2 to 3 gm. The period of administration varied from one week to over five months. Twenty-two patients obtained dramatic relief from stiffness and soreness, followed rapidly by decrease in pain and increased strength and use of the involved joints. Reduction in tenderness of joints and swelling was evident within one week. The remaining 14 patients obtained a lesser degree of relief. Twenty patients were followed up for one month or more after cessation of cortisone therapy, and 17 had a prompt return of their symptoms when cortisone was discontinued. Despite the relatively low dosage schedule of cortisone, in nine patients some signs of hypercortisonism developed. None of these changes were serious. Eight patients had disturbances with an uncertain relationship to cortisone that were classified as complications; one of these patients had a perforated duodenal ulcer without history of previous gastrointestinal difficulty. Encouraging results were observed in six patients who were given the soluble gold salt preparation aurothioglucose in addition to cortisone. The pronounced reduction in the active rheumatoid process due to cortisone allows for more intensive physical therapeutic measures. By preventing the risk of precipitating a rheumatoid flare-up, cortisone may be of significant aid in the rehabilitation of the crippled arthritic patient through various orthopedic reconstructive procedures.

Rhode Island Medical Journal, Providence

34:77-116 (Feb.) 1951

- Physician-Hospital Relations. E. Hess.—p. 77.
- Infectious Hepatitis: Report of Case Complicating Pregnancy. E. S. Wing Jr. and L. Sutton.—p. 81.
- Providence Medical Association—1950. F. W. Dimmitt.—p. 83.
- First Year of Physician Service. J. C. O'Connell.—p. 85.
- Tetanus: Report of Case. C. Bellavance.—p. 86.

Rocky Mountain Medical Journal, Denver

48:153-228 (March) 1951

- Malignant Tumors of Eyeball. C. S. O'Brien.—p. 175.
- The Physician's Task in Atomic Explosion. H. R. Landman.—p. 177.
- Laws of Human Sterilization in Colorado, Utah, and Montana. C. W. Jardine.—p. 183.

Southern Medical Journal, Birmingham, Ala.

44:179-274 (March) 1951

- Cataract Extraction in One-Eye Patient: Study of 75 Consecutive Cases. A. Callahan.—p. 179.
- Saddle Nose. R. H. Riggs.—p. 188.
- Calcaneus Foot. C. E. Irwin.—p. 191.
- Typhoid Meningitis Cured with Chloramphenicol: Case Report. C. M. R. Boettner and A. Carrizosa.—p. 197.
- Thyroid Deficiency in Childhood. W. A. Reilly.—p. 200.
- Lupus Erythematosus: Classification, Diagnostic and Prognostic Value of Biopsies. W. R. Bundick and F. A. Ellis.—p. 204.
- Simple Disk Surgery Versus Combined Operation. G. J. Garceau.—p. 213.
- Esophageal Atresia and Tracheoesophageal Fistula: Report of Case. L. J. Stephens.—p. 216.
- Pulmonary Arteriovenous Shunt and Its Clinical Implications. P. G. Danis.—p. 217.
- Writing: Renewed Obligation for General Practitioner. D. G. Miller Jr.—p. 219.
- Regional Significance of Development of Four-Year Medical School at University of North Carolina. W. R. Berryhill.—p. 222.
- *Neomycin: Adjunct in Abdominal Surgery. E. J. Poth, S. M. Fromm, R. G. Martin and Chin Min Hsiang.—p. 226.
- Plea for Standardization of Skin Testing Material. M. I. Lowance.—p. 231.
- Georgia Plan of Multiphase Testing. C. D. Bowdoin.—p. 236.
- Undetected Diabetes Among Relatives of Diabetics: Epidemiologic Note. M. J. Ford and B. Glenn.—p. 239.
- Inguinal Hernias: Why Do They Recur? A. R. Koontz.—p. 244.

Neomycin in Abdominal Surgery.—Neomycin, obtained from Streptomyces fradiae, differs from its closely related antibiotic streptomycin in that it does not favor the development of resistant forms. Occasionally, however, the growth of Aerobacter aerogenes is not inhibited by neomycin. For this reason in the preoperative sterilization of the bowel phthalylsulfathiazole is given as a supplementary agent, because A. aerogenes has not been observed to develop resistant variants in the presence of this drug. In the absence of obstruction or other contraindications, the following schedule for preoperative preparation has been adopted: low residue diet, castor oil 30 to 60 cc. and, after the first liquid stool, 1.0 gm. of neomycin sulfate is administered together with 1.5 gm. of phthalylsulfathiazole orally on a four hour schedule. The stools are cultured at the end of each 24 hour period. This treatment is continued for three days, but some recent observations indicate that this time might be decreased substantially. Neomycin has been administered orally to approximately 100 patients in the course of one year. Neomycin destroys the bacteria in the gastrointestinal tract very rapidly. Should it be necessary to operate on a person without having had the opportunity of a three day preoperative preparation, it would be possible to evacuate the bowel of its gas and liquid feces and inject a solution of neomycin. When it has been possible to prepare the patient for three days, the bowel is characteristically empty. Resection and anastomosis of the large bowel can be carried out with safety. The combined neomycin-phthalylsulfathiazole method has been used in connection with various types of bowel resection for carcinoma, colitis or polyposis, for operations on the bladder, for resection and enclosure of fecal fistulas, for excision of fistulas in ano and for hemorrhoidectomy. An occasional toxic reaction from the combined administration of neomycin and phthalylsulfathiazole is possible, but reactions due to orally administered neomycin alone will be rare. Evidence suggests that neomycin-phthalylsulfathiazole represents a close approach to the ideal for intestinal antisepsis.

Surgery, St. Louis

29:163-322 (Feb.) 1951

Acute Pancreatitis with Particular Reference to Its Frequency and Difficulties in Diagnosis. A. I. Grollman, G. L. Baum, H. K. Moss and S. Goodman.—p. 163.
*Diagnostic Morphology of Aberrant Pancreas of Stomach: Report of Five Cases. W. H. Benner.—p. 170.
Intussusception in Children Under Two Years of Age: Analysis of 54 Cases from Charity Hospital of Louisiana at New Orleans. H. R. Kahle.—p. 182.
Esophageal Achalasia (Cardiospasm): Report of Two Cases with Unusual Manifestations. J. H. Johnston Jr. and G. E. Twente.—p. 196.
Carcinoid Tumors of Rectum. R. M. Shepard Jr., L. H. Strug and J. H. DiLeo.—p. 205.
Amino Acid Tolerance in Experimental Portacaval Anastomosis. H. A. Harper, R. E. Gardner, R. Johansen and others.—p. 210.
Extensive Secondary Axillary Lymph Node Carcinoma Without Clinical Evidence of Primary Breast Lesion. H. A. Weinberger and D. Stetten.—p. 217.
Malignant Melanoma in the Negro: Review of Literature and Report of Nine Cases. G. C. Morris Jr. and R. C. Horn Jr.—p. 223.
Use of Polyethylene Film and Split-Thickness Skin Graft in Reconstruction of Cervical, Esophageal, and Pharyngeal Defects. C. T. Klopp, C. Alford and H. Pierpont.—p. 231.
Papillary Cystadenoma Lymphomatosum of Parotid Gland. R. E. Holmberg and D. M. Glover.—p. 240.
Carcinoma of Gum. W. L. Mattick and D. J. Meehan.—p. 249.
Arthrokatadysis (Otto Pelvis). R. Scandalis, R. K. Ghormley and M. B. Dockerty.—p. 255.
Advantages of Tracheotomy and Use of New Tracheal Tube in Management of Intratracheal Aspiration: Preliminary Report. S. W. Arhelger.—p. 260.
Venous Circulation in Lower Extremities Following Femoral Vein Interruption. A. F. O'Keeffe, R. Warren and G. A. Donaldson.—p. 267.
New Vein Stripper and Technique of Stripping. C. M. Kutz and W. C. Hendricks.—p. 271.
Simplified Vein Stripper. A. Webb Jr.—p. 276.

Aberrant Pancreas of Stomach.—The five cases of aberrant pancreas of the stomach presented in this paper were observed by Benner in the course of three years. Two of the five cases were discovered during surgical operations; the other three were incidental discoveries at necropsy. The lesions took the form of a pseudodiverticulum of the gastric mucosa, in the depths of which well differentiated pancreatic tissue and ductlike structures were encountered. A common feature was a moundlike elevation of the mucosa. A continuous circle or lip of mucosa outlined an opening ranging from 1 to 5 mm. in diameter. The opening led into a pouch or pocketlike space. These pseudodiverticula varied in depth from 0.5 to 1 cm. and seemed to extend to about the level of the boundary between mucosa and submucosa. In the submucosal connective tissue beneath these pouches the pancreatic tissue was found. The described pseudodiverticulum of the gastric mucosa was never found without associated pancreatic tissue. The gross morphology may prove of great value in identification of aberrant pancreas in the stomach, which is frequently misinterpreted as a malignancy and leads to unnecessarily radical surgery. Although aberrant pancreas frequently persists throughout life without symptoms it may produce pyloric or intestinal obstruction, and all the diseases that affect the pancreas proper may occur in aberrant pancreatic tissue.

Tennessee State Medical Assn. Journal, Nashville

44:45-88 (Feb.) 1951

Frequency of Urinary Tract Calculi in Patients from the Nashville Basin. S. Y. Garrett and H. S. Shelley.—p. 45.
Use of Wintrobe Hematocrit Tube in Office Laboratory. J. W. Kyle and S. G. Richmond.—p. 51.
Gas Gangrene: Report of Case with Unusual Response to Treatment. S. B. Prevo.—p. 56.

U. S. Armed Forces Med. J., Washington, D. C.

2:171-356 (Feb.) 1951. **Partial Index**

Facial Wounds in Korean Casualties. B. N. Soderberg.—p. 171.
Combination of Tar and Antihistaminic for Local Use. J. D. Walters and R. C. Gilman.—p. 187.
*Antabuse Therapy in the Army: Preliminary Report of 50 Cases. C. T. Brown and E. C. Knoblock.—p. 191.
ACTH in Treatment of Erythroblastosis: Report of Two Cases. J. W. Simpson, J. H. Akeroyd, F. L. Swift and L. J. Geppert.—p. 207.
Hernia of Lung: Report of Case. E. L. Freitas and P. H. Vonfraenkel.—p. 213.
Analysis of Fatal Cases of Diphtheria. W. M. Edwards.—p. 217.
Diphtheria of Skin. M. H. Hollander.—p. 229.
Abscess of Spleen. D. L. Andrus, R. C. Ray, F. W. Cottrell Jr. and H. R. Delaney Jr.—p. 233.
Two-Stage Operation in Cure of Massive Scrotal Hernia. C. Bunch.—p. 239.
Cholelithic Intestinal Obstruction. D. H. Manfredi.—p. 243.
Hurler's Disease: Report of Case. R. P. Nadbath and O. S. Lee.—p. 247.
Merostotic Paget's Disease. K. Dunlap and W. G. Turman.—p. 271.
Roentgenographic Findings in Recurrent Shoulder Dislocation. E. A. Brav and A. O. Haff.—p. 277.
Dermoid Cyst of Floor of Mouth. L. Korchin.—p. 289.
Report of Distribution of Whole Blood to Pacific Theater. M. T. Sproul.—p. 293.
Improved Method in Intranasal Dacryocystorhinostomy. R. H. Ward and M. Wiener.—p. 297.

Antabuse Therapy in the Army.—The 50 patients selected for treatment with tetraethylthiuram disulfide (antabuse) included both active duty personnel and veterans addicted to alcohol. Detoxification and "drying out" with modified insulin and an abundance of nourishing food prepared the debilitated alcoholic patient for treatment with antabuse. This is important because this drug may cause violent reactions. Abstinence from alcohol was required for at least seven days before tetraethylthiuram disulfide was given for four days in the following schedules: first day, 2 gm.; second day, 1.5 gm.; third day, 1 gm., and fourth day, 0.5 gm. On the fifth day, breakfast was withheld and the blood pressure, pulse, respiration, and temperature were recorded and the patient was then given 30 cc. of 100 proof whisky. Within five to 10 minutes, the patient complained of a disagreeable flushing of the face, which later extended to the neck and upper part of the trunk. The pulse rate sometimes rose to 140. After about 30 minutes both systolic and diastolic pressures begin to fall, the diastolic sometimes dropping to 40 or less. The flushing was replaced by pallor and mild cyanosis. The patient complained of dyspnea, sensations of constriction in the throat, tightness and discomfort in the chest, and nausea. Profuse vomiting and often severe retching terminates the "conditioning situation." Following recovery from the first drinking trial, the patients were maintained on a dosage of 0.5 gm. of tetraethylthiuram disulfide daily for a week. On the eighth day, they were returned to the conditioning room for their second and final drinking trial. After that the patient was given a one week supply of tetraethylthiuram disulfide with instructions to continue on a maintenance dose of 0.5 gm. nightly. He was to return to the hospital at weekly intervals for a new supply of the drug. During the drinking trials, blood samples revealed an abrupt increase in acetaldehyde. The acetaldehyde syndrome sometimes assumed alarming proportions, often with a drop in blood pressure to the vanishing point. Oxygen was routinely administered as soon as it was believed that the patient had been suitably impressed by his experience. It is likely that the lower oxygen tension in the mile-high location of Denver explains both the alarming reactions and the effectiveness of the low maintenance dose.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

59:97-140 (March) 1951

Survey of Surgical Treatment of Bone and Joint Tuberculosis. M. Cleveland.—p. 97.
Median Episiotomy: Its Technic and Review of 1,500 Consecutive Cases. S. H. Smith.—p. 102.
Observations on 20 Years of Experience in Surgery of Sympathetic Nervous System: *Division* I. P. G. Flothow.—p. 110.
Use of Benzocaine as Topical Analgesia in the Parturient. H. E. Schmitz, C. J. Smith and G. A. Carberry.—p. 117.
Hodgkin's Disease and Pregnancy: Review of Literature and Report of Case. W. Tenenblatt and C. Horton.—p. 120.
Distraction Fractures of Clavicle. S. F. Stewart.—p. 122.
Osseous Metastases of Adenocarcinoma of Thyroid. L. Barnard.—p. 123.
Excision of Distal Fragment of Scaphoid and Styloid Process of Radius for Nonunion of Carpal Scaphoid. F. H. Downing.—p. 127.

FOREIGN

Acta Endocrinologica, Cophenhagen

6:97-190 (No. 2) 1951

Histochemical Changes in Adrenal Cortex of Male Rats Induced by Alloxan Diabetes. O. Eränkö.—p. 97.
*Clinical Experiences with ACTH Treatment of Certain Skin Diseases. H. Brodthagen, F. Reymann and M. Schwartz.—p. 110.
Investigations on the Biological Determination of Glucocorticoids. M. Sprechler.—p. 133.
Paper Partition Chromatography of Sugars from Chorionic Gonadotropic Hormone. H. Zilliacus and B. E. Roos.—p. 147.
Investigations on Inactivation of Vasopressin in Liver. E. Møller-Christensen.—p. 153.
*Case of Sjögren's Syndrome Treated with Adrenocorticotrophic Hormone. M. Frenkel, G. Hellinga and J. Groen.—p. 161.
*Effect of Brain Injury on Menstrual Cycle. O. Kinnunen and M. Kauppinen.—p. 183.

ACTH in Skin Diseases.—So far most of the skin diseases treated with pituitary adrenocorticotropic hormone have been those that are otherwise intractable and even fatal, that is, pemphigus vulgaris, dermatomyositis and scleroderma. The results have been described as encouraging, or even revolutionary, although there have been very few trials. The results of such treatment at a Copenhagen hospital are reported. One patient with pemphigus vegetans was almost moribund when treatment with pituitary adrenocorticotropic hormone was started, but a dramatic remission occurred, and no relapse had occurred three months after treatment was stopped. Another patient with pemphigus vulgaris relapsed a few days after the discontinuation of the pituitary adrenocorticotropic hormone treatment. Of four patients with psoriasis, only one showed temporary improvement, but all except one showed signs of increased adrenocortical function. Of two patients with diffuse scleroderma one showed moderate improvement while the other remained unchanged. One patient with periarteritis nodosa remained unaffected, despite prolonged treatment. The doses of pituitary adrenocorticotropic hormone and the duration of the treatment varied greatly. The doses, which ranged from 20 to 45 mg. per 24 hours, given in three injections, were substantially smaller than those usually administered elsewhere, but they were completely adequate, since the increase in urinary excretion of steroids was as expected. Undesirable side effects were few, probably because of the small doses given.

Adrenocorticotropic Hormone in Sjögren's Syndrome.—The case is reported of a 51 year old woman who complained of dry mouth and gradual decrease in saliva and tears and of fatigue. She had bilateral keratoconjunctivitis sicca with white filaments, and there were small defects of the corneal epithelium. She also had bilateral swelling of the parotid glands. Considerations of various aspects of Sjögren's syndrome suggested that a trial with adrenocorticotropic hormone might be justified. On the first day of treatment with this hormone she received two injections of 25 mg., then 5 mg. six times daily for the next five days; after this, the dosage was increased to 5 mg. 8 times daily. Twelve days later the dosage was gradually diminished. The treatment was continued for 31 days. The swelling of the lacrimal and salivary glands disappeared, the secretion of saliva and tears reappeared, and the raised temperature and general malaise subsided during treatment. The improvement was maintained for nearly one month after cessation of treatment, but ultimately the patient relapsed. Treatment was accompanied by hypertension and retention of extracellular fluid, a tendency to hypochloremic, hypopotassemic alkalosis, a strongly negative nitrogen balance, increased uric acid excretion, hyperglycemia, and a high excretion of 17-ketosteroids. Spasm of the central retinal artery occurred and resulted in loss of vision in the right eye. Whether this was caused by the adrenocorticotropic hormone or by other factors was not established.

Brain Injury and Menstruation.—The menstrual histories of 78 women aged from 19 to 40 who had had brain injury were studied; menstrual disturbances were found in a large proportion of such women. The changes, which may appear in the next or later menstrual periods and may last months or even years, were usually greater when unconsciousness had followed the trauma. It is assumed that lesions in the pituitary or hypothalamus cause these changes.

Beiträge zur Klinik der Tuberkulose, Heidelberg

104:465-580 (Jan. 23) 1951

Results of Two Years' Treatment of Tuberculosis with Conteben (TB I-698) at Freiburg i. Br. Medical Clinic and St. Blasien Health Resort. W. Schaich, L. Stadler and W. Keiderling.—p. 465.
*Conteben in Treatment of Pulmonary Tuberculosis. P. Martini, H. Moers and H. Gansen.—p. 515.

Amithiozone in Pulmonary Tuberculosis.—Two hundred and forty patients with pulmonary tuberculosis were treated with 4-acetylaminobenzaldehydethiosemicarbazone (conteben, TB 1-698). For various reasons therapeutic evaluation was possible only in 94 patients. The disease was influenced favorably by the drug in 72 patients. Twenty-one patients were therapeutic failures. An unfavorable course of the disease after gradual temporary improvement was observed in only one patient, in whom amithiozone apparently had activated the process. In a large number of patients who showed improvement leading to clinical and bacteriologic recovery, the drug was combined with other therapeutic measures. This, however, was always under circumstances in which the other measures alone would not have led to recovery. Definite proof of the therapeutic effect of amithiozone was obtained in patients with exudative, mixed exudative-productive, and with predominantly productive processes. Considerable regression of even large cavities, which were refractory to general treatment, was definitely demonstrated in 56 of 87 patients with cavities. Amithiozone was ineffective in patients with old, cicatrized processes. A specific effect of amithiozone on the bacilli and on the pulmonary tuberculous process respectively is considered by the authors. In addition, an indirect effect of the drug on extrapulmonary tuberculous foci may be assumed occasionally. A certain correlation was observed between the size of the administered dose of the drug and the resulting therapeutic effect. The dosage must be individualized, and in each case the maximum well-tolerated dose should be considered the optimum dose. Treatment of adults should be instituted with small doses of 25 to 50 mg. per day, should be gradually increased, and should not exceed 0.3 gm. per day. In general, the dose must be increased to about 0.15 to 0.2 gm. per day for achieving a curative effect. Untoward reactions, mainly gastrointestinal disturbances, may set an upward limit to the dosage. They require constant control, but, provided that this is carried out carefully and with particular attention to signs of liver damage, the untoward reactions do not involve any risk.

Brain, London

73:281-430 (Sept.) 1950

Adult Toxoplasmosis in One Family. A. M. G. Campbell and F. Clifton.—p. 281.
Late Infantile Metachromatic Leuco-Encephalopathy, with Primary Degeneration of Interfascicular Oligodendroglia. W. R. Brain and J. G. Greenfield.—p. 291.
Myotonia Congenita, Dystrophia Myotonica and Paramyotonia: Reaffirmation of Their Identity. O. Maas and S. Paterson.—p. 318.
Effect of Head Posture on Manometrics of Cerebrospinal Fluid in Cervical Lesions: New Diagnostic Test. L. Kaplan and F. Kennedy.—p. 337.
Anterolateral Cordotomy: Results, Complications and Causes of Failure. J. C. White, W. H. Sweet, R. Hawkins and R. G. Nilges.—p. 346.
Origin, Course and Termination of Prefronto-Pontine Tract in Human Brain. E. Beck.—p. 368.
Electroencephalogram in Subacute Progressive Encephalitis. W. Cobb and D. Hill.—p. 392.
Basilar Impression of Skull. J. E. A. O'Connell and J. W. A. Turner.—p. 405.

British Journal of Ophthalmology, London

35:61-124 (Feb.) 1951. **Partial Index**

Reaction of Corneal Nerve Fibres to Injury. E. Zander and G. Weddell.—p. 61.
Nerve Regeneration in Corneal Grafts in Rabbit. U. Rexed.—p. 89.
Unilateral Retinitis Pigmentosa. R. Joseph.—p. 98.
Effects of Anoxia on Fluorescein Permeability of Blood-Aqueous Barrier. A. Giardini and H. Swanljung.—p. 114.

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Plastic Surgery, Edinburgh

3:225-296 (Jan.) 1951. Partial Index

Fate of Autogenous Human Bone Grafts. L. A. Peer.—p. 233.
Recurring Dislocation of Temporo-Mandibular Joint. S. Gordon.—p. 244.
*Experiences with Bunnell's Pull-Out Wire Sutures. E. Moberg.—p. 249.
Simple Method for Repair of Full-Thickness Defects of Lower Lid, with Special Reference to Treatment of Neoplasms. W. M. Manchester.—p. 252.

Pull-Out Wire Sutures.—The difficulty in obtaining reliable fixation of tendons and ligaments to the skeletal parts, in the exacting anatomic conditions found in the hand, has often been a severe handicap to reconstructive surgery. Bunnell's "pull-out wire technique" undoubtedly makes a suture in such circumstances much easier. Moberg used this pull-out wire technique in tenodeses, attachment of digital ligaments, attachment of ruptured dorsal aponeurosis to the base of the middle or distal phalanx, attachment of flexor profundus tendon to its fractured insertion, in free tendon transplants, in tendon transfers, and for suture of flexor tendons "at a distance." In most of the 101 cases the suture was completely satisfactory. The wire was pulled out after three to five weeks. In no case was the postoperative course disturbed by infection or was there any subsequent loosening of the fixation of tendons or ligaments. The less satisfactory cases were two in which the thread for pulling out the wire broke when it was pulled. This can be avoided, as Bunnell suggests, either if traction is applied to it with a rubber band or if one waits another week before pulling it out. Not the least advantage of the technique has been its simplification of the sutures of collateral and volar ligaments of the thumb and fingers and also of fixation of the torn bony insertion of the flexor profundus tendon. When the tendon has been fixed to the distal phalanx, the suture wire is tied to the free border of the nail after a hole has been made in it. No deformity of the nail persists after the nail has completely grown out.

British Journal of Radiology, London

24:57-118 (Feb.) 1951. Partial Index

Advantages and Disadvantages of Salpingography, with Particular Reference to Use of Diodone Viscous. J. H. E. Bergin.—p. 93.
Lesion Suggesting Aseptic Necrosis in Cervical Vertebra: Report of Two Cases. J. Munk.—p. 103.
Bone Destruction Not Demonstrable by Radiography. G. M. Ardran.—p. 107.
Microradiography in Biology. G. A. G. Mitchell.—p. 110.

British Medical Journal, London

1:431-488 (March 3) 1951

Visual Hallucination of Self. J. Lhermitte.—p. 431.
Aetiology of Physiological Jaundice of Newborn. A. S. Wiener.—p. 435.
Outcome of Mental Breakdown in Old Age. F. Post.—p. 436.
Phaeochromocytoma of Adrenal Gland, with Sustained Hypertension. H. J. C. Swan.—p. 440.
Two Cases of Phaeochromocytoma. K. V. Crowther.—p. 445.
Case of Adrenal Phaeochromocytoma. J. F. Pantridge and M. M. Burrows.—p. 448.
Retrolental Fibroplasia. J. Minton and P. Cole.—p. 450.
New Operation for Chronic Peptic Ulcer. S. O. Aylett.—p. 454.
Rare Blood Antigen Occurring in Negroes. E. W. Ikin and A. E. Mourant.—p. 456.

Deutsche medizinische Wochenschrift, Stuttgart

76:197-228 (Feb. 16) 1951. Partial Index

Analysis of Respiratory Insufficiency. H. C. Landen.—p. 197.
Hemolytic Anemias with Increase in Osmotic Resistance in Erythrocytes: Twenty-Five Years of Research. F. Reitti.—p. 199.
Changes in Type and Incidence of Complications of Diabetes Mellitus: Economic Treatment of Diabetes. B. Knick.—p. 202.
*Infectious Mononucleosis. H. Deckart.—p. 205.
*Choline Therapy in Virus Hepatitis. H. Kipping.—p. 208.
*Treatment in Deficient Dark Adaptation (Night Blindness). S. Niedermeier.—p. 210.

Infectious Mononucleosis.—Infectious mononucleosis appeared in epidemic proportions at a hospital in Kiel during the spring of 1950. However, in many cases a correct diagnosis was established only on the basis of the differential blood picture. This was the case in 15 of 63 patients who had been hospitalized with a diagnosis of diphtheria or suspected diphtheria. Since only patients who were suspected of diphtheria were hospitalized, it is likely that numerous other patients with infectious mononucleosis were treated elsewhere under different diagnoses, especially since the symptomatology of the disease varies widely. Three different forms are usually differentiated: (1) Pfeiffer's glandular fever, with generalized swelling of lymph nodes (usually occurring in young children); (2) the anginal form (monocytic angina), and (3) the purely febrile form, in which general symptoms predominate. In 13 of the 15 patients reported on here, anginal symptoms predominated, the other two (both children of 18 months) had the symptoms characteristic of Pfeiffer's glandular fever. The importance of the heterophilic antibody reaction of Paul-Bunnel is explained. A positive reaction corroborated the diagnosis in 11 of the 15 cases here reported. In seven instances punctates of lymph nodes or tonsils were examined for further clarification of the diagnosis. This measure, which has been recommended by Lämmler, yielded satisfactory results in only three of the cases, and so the author feels that this diagnostic aid can be dispensed with.

Choline Therapy in Virus Hepatitis.—In cases of virus hepatitis the disorder is supposedly located primarily in the reticuloendothelial apparatus and spreads from there to involve the entire liver. A second type of hepatic lesion results from closure of the bile passages and a third type is exemplified by primary degenerative parenchymal disorders. Choline therapy has been used so far chiefly in this last type of hepatic lesion. The 37 patients reported on here were selected by exclusion of all cases with a toxic etiology; there were signs of impairment of the reticuloendothelial system (monocytosis) but no complicating secondary disorders in addition to the liver disease. Normalization of the bilirubin content of the serum was taken as the criterion of the success of treatment. Ten of the 37 patients served as controls in that they were treated without remedies used in the other groups. The 13 patients of group 1 were treated only with choline; another group of eight patients were given in addition dextrose into the duodenum, and two patients received methionine in addition to the choline. Capsules containing choline chloride were used in the choline therapy. One group of four patients was treated with injections of a choline compound. It was found that treatment with choline reduced the duration of virus hepatitis to about half. Theories to explain the mode of action of choline are briefly discussed.

Dark Adaptation.—Niedermeier mentions the value of liver preparations, vitamin A and vitamin B_2 in the treatment of deficient dark adaptation (night blindness). The blooms of dandelions, having been known as a popular remedy for night blindness, have now been found to contain a substance known as helenin, which is a dipalmitic acid ester of lutein. However, to be effective in the production of visual purple, helenin requires the presence of a certain amount of vitamin A. Therapeutic trials with a daily dose of 0.5 cc. of a 1% oily solution (peanut oil) of helenien (adaptinol) convinced the author that it is effective not only in improving the dark adaptation in cases of night blindness without pathological eye changes but also in the night blindness that accompanies retinitis pigmentosa. Disturbances in intestinal resorption seem to account for failures of this treatment. The author hopes to improve the therapeutic effect of helenien still more by the simultaneous administration of vitamins A and B_2.

Helvetica Chirurgica Acta, Basel

18:1-112 (Feb.) 1951. Partial Index

*Lesions of Bladder and Kidney in Dyestuff Industry. A. Müller.—p. 1.
Fungus Diseases of Kidney Simulating Tuberculosis. W. Gütter and H. Haschek.—p. 42.
Abnormal Position of Colon. H. Ziegler.—p. 49.
Posttraumatic Changes in Blood and Predisposition to Thrombosis. W. Gugelmann.—p. 80.

Lesions of Bladder and Kidney in Dyestuff Workers.—This report on lesions of the bladder and kidney occurring in workers employed in the manufacture of dyestuffs is based on a review of the literature and on the author's own observations on a total of 161 cases including 43 cases of papilloma, 96 of carcinoma, and 22 of hemorrhagic cystitis. The following substances are probably responsible for the bladder and renal lesions: aromatic amines, aniline, benzidine, alpha naphthylamine and beta naphthylamine, and, in one case, anthracene. These substances are inhaled in the form of gas or dust and are excreted in the urine. Necropsy studies on 55 patients convinced the author that these tumors are highly malignant and produce metastases. The tumors are located most frequently in the region of the trigonum but may occur also in the renal pelvis and kidneys and as polyps of the ureter. Multiple primary tumors that were not the result of propagation or metastasis were observed by the author in 10 patients following occupational exposure to dyestuffs. Coagulation is the treatment in benign cases; in carcinoma, resection of the bladder is necessary, and, recently, total cystectomy has been employed. Preventive measures include changing of certain manufacturing methods so that exposure to noxious substances will be reduced and cystoscopic examinations of workers at regular intervals.

Lancet, London

1:419-480 (Feb. 24) 1951

Infection and Immunity in Smallpox. A. W. Downie.—p. 419.
Vitamin K in Prevention of Haemorrhagic Disease of the Newborn. J .D. Hay, F. P. Hudson and T. S. Rodgers.—p. 423.
*Treatment of Generalized Staphylococcal Infections. A. M. Ramsay and J. Vahrman.—p. 425.
Lysivane and Artane in Treatment of Parkinsonism. O. Garai.—p. 429.
Dust Cells in Lungs of Albino Mouse: Their Structure, Relations and Mode of Action. C. C. Macklin.—p. 432.
*Incidence of Penicillin-Resistant and Streptomycin-Resistant Staphylococci in a Hospital. P. M. Rountree, R. G. H. Barbour and E. F. Thomson. —p. 435.
Tuberculosis of Endometrium: Investigation and Treatment. M. Haines. —p. 436.
Bronchial Asthma Treated by Bilateral Resection of Vagus: Report of Six Cases. C. A. Clarke.—p. 438.
Organic Hyperinsulinism Treated with Alloxan. W. S. L. Gilchrist and M. J. G. Lynch.—p. 440.
Tuberculosis of Nasolacrimal Duct. P. G. Konstam and M. J. Meynell. —p. 443.
Deoxycortone Acetate and Ascorbic Acid in Rheumatoid Arthritis. K. S. MacLean.—p. 444.
"Isolated" Myocarditis Associated with Unilateral Cortical Necrosis of Kidney. I. M. Baird and J. C. Burne.—p. 446.
Late Infectivity in Hepatitis. P. N. Meenan.—p. 447.

Generalized Staphylococcic Infections.—Three periods of the treatment of generalized staphylococcic infections of the puerperium are reviewed. During the prepenicillin period 1937 to 1943 inclusive, 23 patients with generalized infection due to Staphylococcus pyogenes were treated. Of these, 18 followed abortion and five followed full-term delivery. In this series Staph. pyogenes exhibited an invasive power far exceeding that of other organisms in puerperal infection. Treatment with sulfonamides and staphylococcic antitoxin had little effect on the disease. Of the 23 cases, 10 proved fatal, a rate of 43.4%. Chronic invalidism associated with infective foci on heart valves, in lung, and in joints was common. Between December, 1943, and April, 1946, eight patients were treated with small doses of penicillin (i. e., about 15,000 units every three or four hours); two cases proved fatal. Of the six patients who recovered, only two showed good response to this dosage of penicillin. A small dosage of penicillin, although it sterilized the blood stream, did not necessarily arrest the disease. Early cessation of penicillin therapy favored relapse. At the beginning of the third period patients were treated with 500,000 units of penicillin every three hours. The results indicated that massive doses of penicillin should always be used in proved or suspected cases of staphylococcic septicemia so that there will be adequate penetration of the penicillin into the pyemic abscesses and so that penicillin-resistant strains will not develop. Where there is evidence of endocarditis, penicillin therapy should be continued for at least four weeks. If penicillin therapy does not produce clinical benefit within 48 hours, recourse should be had to aureomycin.

Resistant Strains of Staphylococci.—A total of 603 strains of Staphylococcus pyogenes obtained from 513 inpatients and 90 outpatients were examined for sensitivity to penicillin and streptomycin. Penicillin-resistant organisms were found in 53.4% of the inpatients and 24.6% of the outpatients. For streptomycin resistance the figures were 14 and 1.1%, respectively. Strains resistant to both penicillin and streptomycin were obtained from 72 (14%) of 513 inpatients compared with one of 90 outpatients. This incidence of 14% was significantly higher than the 3.5% obtained with 196 patients examined in the preceding six months. When it became apparent that streptomycin-resistant strains increased in the same way as penicillin-resistant strains, it was of interest to investigate what phage types were involved. It was found that at least 65 of doubly resistant strains belonged to phage types of the genetically related group labeled 6/7/47.

Nordisk Medicin, Stockholm

44:1979-2038 (Dec. 22) 1950. **Partial Index**

*Peritendinitis Calcarea. K. Braaten.—p. 1979.
Tennis Elbow. E. Snorrason.—p. 1981.
*Temperature and Sedimentation Reaction in Gastric Ulcer. H. S. Mathisen.—p. 1983.
Inoculation Hepatitis. V. Gaustad and K. Husebye.—p. 1986.
Death After Transfusion with Rh Incompatible Blood. J. Saugman-Jensen and I. Christensen.—p. 1994.

Peritendinitis Calcarea.—Peritendinitis calcarea may appear in acute, chronic, or latent form. In the acute form, the pain is often intense and the motility of the joint limited; local edema is frequent. In most cases there is some elevation of temperature, and the sedimentation reaction is often increased. Clinical diagnosis is verified by roentgenologic demonstration of calcium deposits in the soft parts near the joints, but diagnosis can usually be made without roentgen examination, except sometimes in chronic cases. The latent form is manifested only as an accidental finding. An important characteristic of the calcium deposits in peritendinitis calcarea is the absence of bony structure. Such deposits must be differentiated from sesamoid bones in wrist or instep, myositis ossificans near the upper edge of the acetabulum, which eventually shows bony structure, small bits of bone following trauma, and posttraumatic calcium deposits. The etiology and the mechanism on which the symptoms depend are unknown. The acute form tends toward spontaneous recovery; roentgen treatment shortens the course. In the chronic form the symptoms usually disappear after a series of six roentgen treatments.

Temperature and Sedimentation Reaction in Gastric Ulcer.—Mathisen studied 285 cases of roentgenologically verified gastric and duodenal ulcer. He found an increased erythrocyte sedimentation rate and/or increased temperature in about half the 138 cases of gastric ulcer and in about two-thirds of the 147 cases of duodenal ulcer. In 91 cases there was no plausible explanation for the increased values. Increased sedimentation rates, especially values over 50 mm., were more frequent in gastric than in duodenal ulcer. Assuming that gastric hemorrhage, grave anemia, and blood transfusions may have caused a rise in temperature and increased sedimentation rate, some unexplained cases still remain. The author is inclined to consider an accompanying infection as the cause. Penetrating ulcers may lead to lymphadenitis, lymphangitis, possibly inflammation in adjacent organs, or localized peritonitis, conditions which may be expressed both in sedimentation rate and temperature curve. Cancer of the stomach can occur with or without increased sedimentation rate. This rate may possibly be useful in distinguishing between ulcers that heal spontaneously and those that heal with difficulty, tend to recur, and/or later lead to perforation.

Revista Española de Pediatriá, Zaragoza

6:763-862 (Nov.-Dec.) 1950. **Partial Index**

*Gonococcic Vulvovaginitis in Young Girls. J. Carrera.—p. 820.
*Comparative Examination of Neuropsychic Disturbances Observed in Children of Tuberculous, Syphilitic, Malarial or Alcoholic Parents. M. Schachter.—p. 823.

Gonococcic Vulvovaginitis in Young Girls.—Carrera reports that 75% of the cases of vulvovaginitis are of gonococcic origin. The incidence of the disease in the newborn is not high because of maternal hormonal protection; it occurs much more frequently later in childhood. The disease tends toward spontaneous cure and always disappears before puberty. The author points out the ineffectiveness of treatment with irrigations, ointments, washings, and fever therapy. Although estrogen therapy produces temporary relief the dangers that accompany its use, i. e., congestion of the mammary glands, development of secondary sex characteristics, colic, and possible cancerigenic action prohibit its extensive use. Sulfonamide therapy effected a 55% cure rate; combined sulfonamide and estrogen therapy was more effective. Penicillin was more effective than sulfonamides, without the toxic effects of the latter. Streptomycin administered up to a total dose of 5 gm. furnished the best results, since it acts on all the bacilli involved, including gonococci and streptococci. The author concludes that streptomycin is always indicated in the treatment of vulvovaginitis in young girls whether gonococci enter into its etiology or not.

Neuropsychic Disturbances of Children of Tuberculous, Syphilitic, Malarial, or Alcoholic Parents.—Schachter investigated the neuropsychic disturbances that occurred in children whose parents (either one or both) suffered from tuberculosis, syphilis, malaria, or alcoholism. All cases were eliminated in which there was more than one known cause of disease. One hundred and ten children of tuberculous parents, 109 of syphilitic parents, 116 of malarial parents, and 166 of alcoholic parents were observed. The two main types of neuropsychic disturbances that were observed in these children were psychopathic and neuro-organic. The highest percentage of psychopathic disturbances was found in children of alcoholic parents. The results further showed that parental alcoholism and syphilis play an important role respectively in the predisposition toward epilepsy. Syphilis of the parents alone seemed to be dominant in the group of children with encephalitis. Parental alcoholism and tuberculosis were found to have an important effect on the physical and sexual development of the children in this study. Finally, children of alcoholics and of syphilitics showed the greatest percentage of cases of mental and sexual retardation.

Semaine des Hôpitaux de Paris

27:615-660 (Feb. 26) 1951. **Partial Index**

Salmonella Typhimurium Infection in Nursing Infants. J. Marie, P. Seringe, L. Le Minor and E. Eliachar.—p. 615.
Treatment of Salmonella Typhimurium Infection. J. Marie, P. Seringe, L. Le Minor and E. Eliachar.—p. 625.
*Note on 40 Cases of Typhoid or Paratyphoid in Children Treated and Cured with Chloromycetin. J. Marie, P. Seringe, G. See and P. Marland.—p. 630.

Chloramphenicol in Treatment of Typhoid or Paratyphoid.—Forty nursing infants and children with typhoid or paratyphoid were treated with chloramphenicol (chloromycetin®). Nursing infants and small children were given orally 0.05 to 0.10 gm. of the drug per kilogram of body weight. Older children received a total dose of 1.5 to 2 gm. daily. Treatment with these doses administered in tablets was continued for eight to 15 days. Untoward reactions reported by others, such as collapse or severe digestive disturbances resulting in death, were not observed by the authors. They caution against a massive initial dose of the drug and advise administration of half the dose for the first two days of treatment. With this technique, fever may be prolonged (from two to five days), but typhoid deaths, which were already few in children before antibiotic therapy was instituted, may be eliminated. In the authors' patients rapid defervescence occurred within seven days and frequently within four days. Recovery without sequelae resulted in two patients with severe typhoid encephalitis. Nearly complete recovery from typhoid osteomyelitis of the metacarpus and phalanges occurred in one instance. Only two of the 40 patients had recurrences. Serum diagnosis was made on a strongly positive Widal reaction in all instances, which appeared after the usual interval.

Strasbourg Médical

2:1-60 (Jan.) 1951. **Partial Index**

*Study on Degree of in Vitro Sensitivity of Gram-Negative Bacilli and Particularly of Enterobacteriaceae to Several Antibiotics (Penicillin, Streptomycin, Dihydrostreptomycin, Chloromycetin, Aureomycin, Terramycin, Neomycin). A. Lutz, A. Witz, A. Troussel and others.—p. 1.
Considerations on Our Cases of Fetal Death in Utero. J. P. Blum and G. Korsec.—p. 15.

In Vitro Sensitivity of Gram-Negative Bacilli to Antibiotics.—The in vitro sensitivity of strains of Salmonella, Escherichia coli, Paracolobactrum, Proteus, Alcaligenes faecalis, Pseudomonas aeruginosa, and Shigella to six antibiotics (penicillin, streptomycin, dihydrostreptomycin, chloramphenicol [chloromycetin®], aureomycin, and terramycin) was studied. The action of neomycin on several strains of Escherichia coli and Proteus also was studied. Results were as follows: Titrated Salmonellae were highly sensitive to chloramphenicol, terramycin, and aureomycin. No resistant strain was observed. The strains of E. coli and Paracolobactrum that were sensitive to streptomycin, as well as those that were resistant to it, were highly sensitive to chloramphenicol, aureomycin, and terramycin. The strains resistant to streptomycin were sensitive to neomycin but had more pronounced individual differences in their sensitivity to this antibiotic than to terramycin. Nearly all the strains of Proteus mirabilis, P. vulgaris, P. rettgeri and P. morganii were sensitive to chloramphenicol. Only two resistant strains were observed, and only one of these two was highly sensitive to neomycin. Only terramycin was highly active against Pseudomonas aeruginosa. This study like all others of this type suggests caution in the use of antibiotics even though they may have been chosen carefully, because other pathogenic agents, which in a latent state may have been associated with the agents that were inhibited by the antibiotics, may take their place.

Ugeskrift for Laeger, Copenhagen

113:137-166 (Feb. 1) 1951

*Conservative or Combined Conservative-Operative Treatment of Acute Hemorrhage from Ulcer. J. Pedersen.—p. 137.
*Surgical Treatment of Bleeding Gastric and Duodenal Ulcer. K. H. Køster.—p. 144.

Conservative or Combined Conservative-Operative Treatment of Acute Hemorrhage from Ulcer.—Pedersen's analysis of conservatively treated cases of acute ulcer hemorrhage shows that the mortality rate is increased in patients with perforation, pronounced pain during hospitalization, hemorrhage after admission, pyloric stenosis, and cachexia. The mortality rate is not increased in those who have had earlier operation for ulcer or earlier manifest bleeding. He proposes the following lines of guidance for surgical treatment of acute bleeding ulcers, the preliminary requirements being that the diagnosis of chronic ulcer can be made or is probable, that blood transfusion was given directly after admission, and that there are not definite contraindications to operation. In the 60 to 70 year age group operation should be performed immediately after the first hematemesis in the hospital. Operation is absolutely indicated if the hematemesis produces hemorrhagic shock or if the patient has pyloric stenosis or pronounced pain during hospitalization, and operation is recommended when the diagnosis of chronic ulcer is regarded as certain. In the 40 to 50 year age group operation should be done after the first hematemesis in the hospital only if several of the absolute conditions are fulfilled. In the age group under 40 operation is to be considered only in exceptional cases and then only after full conservative treatment has been tried for a longer time. Routine operation for patients aged 70 or over is not advised as too little is known of the operative mortality rate in this group; if operation is to be attempted in suitable cases it should be carried out immediately after the first hematemesis in the hospital.

Surgical Treatment of Bleeding Gastric and Duodenal Ulcer.—Køster says Pedersen has shown that almost all fatal cases of bleeding gastric ulcer occur in a small group of patients aged 40 or over, who have hematemesis after hospitalization. Of 32 patients in this category admitted to Bispebjerg hospital and Blegdams hospital during the past two years, seven remained in medical divisions and 25 were transferred to the surgical department. Three of these were discharged without operative treatment; two died without operation, and in 20 stomach resection was done. One patient operated on, a woman aged 62 with ulcer 6 by 8 cm. and heart block, died two weeks after operation. From his study the author concludes that the selection of patients for operative treatment as proposed by Pedersen makes rational application of the best principles for treatment of bleeding gastric ulcer, namely, avoidance of operation in all those not in danger (patients under 40 and patients with melena) and operation on those who are in danger (patients over 40 with hematemesis after admission) without waiting for massive hemorrhage.

BOOK REVIEWS

Recovery from Aphasia. By Joseph M. Wepman, Ph.D., Clinical Instructor in Otolaryngology (Speech Pathology) and Lecturer in Psychology, *University of Chicago*, Chicago. With foreword by Wendell Johnson, *Director of* Speech Clinic, State University of Iowa, Iowa City. Cloth. $4.50. Pp. 276. The Ronald Press Company, 15 E. 26th St., New York 10, 1951.

With heightening interest in all phases of rehabilitation, this book appears at a propitious time to serve as a guide for those concerned with the care of the aphasic patient.

Covering the essential historical data and giving his classification of aphasia, which has the appeal of simplicity, Dr. Wepman lists the essential members of the rehabilitation team. He includes, as he should, the nurse at the bedside, the many physicians involved, the aphasia therapists, and the family. He sees the team functioning at its best in the hospital situation, but tries to present the idea that an individual "aphasia therapist," trained in the technique of speech, education, and psychology, might be able to function in practice.

The author recognizes with skill and clarity that the patient whose brain is damaged by trauma or disease presents a many-faceted problem, because the resulting language disorder distorts and frequently prevents adequate social communication. The interrelation of language and personality, and the impossibility of treatment of one to the exclusion of the other, is likewise brought out. The emphasis is on the necessity for consideration of both if there is to be hope for recovery. The patient with brain injury suffers from a "disorder affecting (his) total reaction pattern due to a disturbance of the integrating capacity of the cortex." With this in mind, the author proceeds to outline a therapeutic program which is based on a varied, flexible approach to the "whole" man and which recognizes that the aphasic adult is, as a result of his cortical upheaval, a different man, with a changed capacity, a modified integrative ability, and a new concept of self. The author gives specific approaches and direct therapeutic techniques for the receptive, expressive, and mixed aphasias. The book is recommended as a textbook for workers in speech pathology and therapy, and clinical psychologists, and should be extremely valuable for neurologists, psychiatrists, otolaryngologists, and other physicians who must deal with the aphasic adult. Dr. Wepman writes succinctly and effectively. He is well qualified with much experience as a therapist and teacher with soldiers with brain injury. The format and bibliography are excellent.

Malignant Disease of the Female Genital Tract. By Stanley Way, M.R. C.O.G., Gynaecologist to Newcastle Regional Cancer Organization, Newcastle-on-Tyne. Cloth. $5. Pp. 279, with 38 illustrations. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1951.

The aim of the author was to prepare a book not only for those practicing gynecology, but also for radiotherapists and perhaps even pathologists, because it contains information concerning diseases which they encounter but which lie outside the spheres of radiotherapy and pathology, yet are of great importance if their special knowledge is to be integrated into the subject as a whole. The book deals with carcinoma of the vulva, vagina, cervix, body of the uterus, ovary, and fallopian tube; sarcoma of the genital tract; miscellaneous malignant tumors, and pregnancy complicated by malignant tumors.

This book is based on Way's experience, which has been extensive. For example, the author has studied 314 cases of vulval carcinoma, 64 cases of cancer of the vagina, 1,368 cases of carcinoma of the cervix, 79 cases of corpus cancer, and 130 cases of carcinoma of the ovary. The author agrees with most gynecologists that the treatment of carcinoma of the vulva is essentially surgical. He emphasizes that no carcinoma of the female genital tract is more difficult to treat successfully than a carcinoma of the vagina. He sums up the present position in regard to treatment of carcinoma of the cervix by stating that the most suitable case for surgery is the case that does best with radium treatment, but that surgery can cure about ten per cent of cases in which radium at present fails. In the case which responds favorably to radium, irradiation can do more and with a lower mortality than surgery. In the very early cases of corpus carcinoma, adequate irradiation can produce results nearly as good as those achieved by surgery, but if these two conditions are not fulfilled, then the results fall a long way short of adequate surgical treatment. The results of treatment of cancer of the ovary cannot be good, and the operability is depressingly low. The problem is mainly one of early diagnosis.

This book contains all the essential information about malignant tumors of the female genital tract. It is very well written; it is definitely authoritative, and the recommendations made concerning therapy are in accordance with the ideas of the leading authorities in the world. The inclusion of many tables, illustrations, and roentgenograms helps the book considerably. All gynecologists, radiologists, and tumor specialists should surely possess this book.

Watch out for the Weather. By Jacqueline Berke and Vivian Wilson. Cloth. $2.95. Pp. 226, with illustrations by Lombard C. Jones. Viking Press, Inc., 18 E. 48th St., New York 17, 1951.

In spite of the hopeful attitude taken in this book, the accumulated evidence that weather is important, and the apparent proof that it may affect some disease conditions, one has the feeling that the outlines of this thesis are still far too hazy. One encouraging fact stands out, however: man is beginning to do something about the weather besides talk about it. Whether these small beginnings will ever resolve weather problems on a scale that will be significant remains to be seen. Some of the evidence in the book supports this concept. Other points negate it.

In the chapters in the first part of the volume, the authors make a valiant effort to show that weather changes can cause or affect disease, but there is a strong suspicion that the long arm of coincidence is being overlooked. To say, for example, that appendicitis follows the weather would appear to be far fetched. And the opinion of the authors that summer stomach infections are due apparently only to blood "settling" in the outer areas of the body, leaving the intestines undefended, ignores too many other recognized factors.

Nevertheless, the volume makes interesting and instructive reading, especially those chapters dealing with polluted air, modern weather men, man-made weather, and the question of whether our weather is changing. The authors attack vigorously the concept that tuberculous patients find little or no benefit from moving to different climates. One conclusion that will surely stand unchallenged is that the southern portion of this country is a better place to live, although no evidence is presented that disease has left that area completely. For those interested in following up this subject, there is a rather extensive bibliography.

Your Sinus Troubles and Treatments: An Authoritative Explanation for the Layman, with Recommendations for the Treatment of Your Sinus Conditions, Colds, Hay Fever and Other Allergies. By Friedrich S. Brodnitz, M.D. Cloth. $2.50. Pp. 243, with 10 illustrations. Abelard Press, Inc., 381 Fourth Ave., New York 16, 1950.

Like many of his medico-literary colleagues, the author believes that rather than leave medical writing to journalists with second-hand information, physicians should take the lead in satisfying the public interest in matters pertaining to health. To meet the challenge, he has written in simple colloquial language a sane book on sinus disease. Commencing with a description of the nasal cavity and its functions, Brodnitz proceeds to discuss nasal and sinus infections in their various ramifications, touches on such related topics as hay fever and nasal allergy, and concludes with a sound evaluation of contemporary medical and surgical sinus therapy.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Lust-Pfaundler, *Krankheiten des Kindesalters: Ihre Erkennung und Behandlung in der Praxis.* Neubearbeitet von Prof. Dr. Josef Husler, Chefarzt des Kinderkrankenhauses Munchen-Schwabing. Sixth edition. Cloth. 22.80 *marks. Pp.* 683. Urban & Schwarzenberg, Thierschstrasse 11, München 2; Meinekestr, 13, Berlin W. 15, 1950.

This book is not, as the title may suggest, a textbook of pediatrics but a manual for the practicing pediatrician. It is divided into three parts. The first part (445 pages) contains brief diagnostic and more elaborate therapeutic notes on children's diseases. These are listed by chapters according to age groups, causes, and organ systems. The second part (40 pages) deals with diagnostic and therapeutic techniques described in alphabetical sequence. The third part (152 pages) is an alphabetical list of prescriptions and preparations. The practical usefulness of this guidebook to pediatric practitioners should be considerable, and for this reason, it is highly recommended.

One wonders, however, whether the practitioner might not be hampered in the daily use of the manual by its physical bulk and the accumulation of time-honored ballast. He would do better with less of either and with stronger guidance toward the really essential. For example, it should be possible in the second and third parts to eliminate descriptions of such procedures as air baths, hardening, and "connective tissue massage," and of numerous therapeutic specialties and obsolete drugs. Similarly, the table of some 20 artificial infant feedings (page 38) is supplemented in part three by elaborate cooking recipes. Most of them are dispensible in pediatric practice. The essential factor here is clean sterilized cow's milk, which may or may not be diluted or reinforced. For treating infantile diarrhea, the practitioner needs two modifications: boiled skimmed milk and natural or artificial buttermilk. To suggest to him more complicated mixtures only deflects his attention from the supreme lifesaving essential: subcutaneous and especially intravenous administration of sufficient amounts of crystalline solutions (Ringer's, glucose, and lactate). Introduction of solid food in the normal infant's diet is suggested as late as age 5 and 6 months (page 29).

The chapter on "Constitutional and Metabolic Disorders" (page 69) deals with the so-called exudative and lymphatic diatheses, diabetes mellitus, obesity, and leanness. The first subject could be safely taken up in the chapters on skin diseases and hematology, the second in that on endocrine diseases, and the last two in the latter chapter as well as among those on the juvenile neuroses and psychopathic traits (which, by the way, are very neatly discussed).

The original author of this book is the late Dr. F. Lust of Karlsruhe, whose eighth edition, his last, was published in 1934. Displaced from his hospital position under Nazi racial laws, he committed suicide shortly thereafter. It seems fitting to establish the present edition and any later editions of this book as a memorial to Dr. Lust.

A Textbook of the Practice of Medicine. By Various Authors. Edited by Frederick W. Price, F.R.S.Ed., M.D., C.M.Ed., Consulting Physician to Royal Northern Hospital, London. Eighth edition. Cloth. $9. Pp. 2076. Oxford University Press, 114 5th Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1950.

The present edition of this excellent textbook of general medicine by 31 British authors, contains many additions and revisions. New articles have been added on antibiotics, sulfonamides, injuries from nuclear fission, cervical intervertebral discs, rehabilitation of paraplegics, South American blastomycosis, filaria, Reiter's disease, chronic intermittent juvenile jaundice, paroxysmal proctalgia, calcified pericardium, diaphragmatic hernia, and other subjects. Numerous articles have been partially or entirely rewritten, and changes in classification and nomenclature have been made. Data on the newer antibiotics such as aureomycin, chloramphenicol (chloromycetin®), terramycin hydrochloride, and viomycin are not included, nor is mention made of cortisone or pituitary adrenocorticotropic hormone. Many recent advances in treatment are included, however. The volume has the advantage over many textbooks of medicine that it has a section devoted entirely to skin diseases. Few of the sections have photographs or diagrams, but the section on clinical electrocardiography is well illustrated. The entire book is well organized and adequately indexed. The emphasis throughout is on the practical details of diagnosis, prognosis, and treatment. This work should prove useful to students and practitioners.

Scoville's The Art of Compounding. By Glenn L. Jenkins, Dean and Professor of Pharmaceutical Chemistry, Purdue University, School of Pharmacy, Lafayette, Indiana, Don E. Francke, Chief Pharmacist, University Hospital, University of Michigan, Ann Arbor, Michigan, Edward A. Brecht, Dean and Professor of Pharmacy, University of North Carolina, School of Pharmacy, Chapel Hill, North Carolina, and Glen J. Sperandio, Assistant Professor of Pharmacy, Purdue University, School of Pharmacy, Lafayette, Indiana. Eighth edition. Cloth. $7.50. Pp. 515, with 77 illustrations. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1951.

This valuable reference book has been made even more valuable by this revision, in which developments of recent years have been included. There is new material in this edition, such as chapters on solutions for special purposes, allergenic solutions, and the inclusion of possible incompatibilities for many of the new medicaments which have carved an indelibile name for themselves in the modern materia medica. All this new information enhances the value of this already widely accepted book on pharmaceutical compounding and dispensing. The chapter on emulsions has been enlarged to include the many new and excellent emulsifying agents and aids. For the student or pharmacist confronted with this book for the first time, it should be made known that the preparations of all types of pharmaceuticals is included, namely, powders, pills, tablets, capsules, emulsions, ointments, and solutions.

Like previous editions, this book is a real aid to the dispensing pharmacist in the accurate compounding of the physician's prescription. In view of the fact that over three-quarters of the book is devoted to new material, it is more valuable than ever in keeping the pharmacist abreast of changes made by the rapid progress of medical research.

The Use of Pedicle Flaps of Skin in Plastic Surgery of the Head and Neck. By Gordon B. New, M.D., F.A.C.S., Professor of Plastic Surgery, and John B. Erich, M.D., F.A.C.S., Associate Professor of Plastic Surgery, both of Graduate School, University of Minnesota, Minneapolis. Publication number 56, American Lecture Series, monograph in American Lectures in Surgery, edited by Michael E. DeBakey, M.D., Professor of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Kentucky. Plastic Surgery Division. Editor: James Barrett Brown, M.D., Professor of Clinical Surgery, School of Medicine, Washington University, St. Louis, Missouri. Cloth. $3. Pp. 104, with 76 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

When a work prepared as a lecture will "stand up to print," there is *ipso facto* evidence of its intrinsic quality. The conciseness and systematic organization of this brief but comprehensive volume is a case in point. The authors have covered their subject well in remarkably small compass.

Controversy is rife, and probably will continue to be, with regard to the technics of choice in plastic surgery. Drs. New and Erich emphasize the fact that they have no intention of setting forth any "unalterable" procedures. Experience at the Mayo Clinic is the basis of their presentation.

The use of pedicle flaps is discussed with particular reference to plastic operations on the head and neck. The various types of flap are described and illustrated. The factors of elevation, delay, and transplantation are given due weight in the discussion. Recommendations for the treatment of both injuries and deformities are clearly set forth.

The illustrations are consistently good. The text is well-written and should be of considerable value to the plastic surgeon.

Diabetes Insipidus. By Harry Blotner, M.D., Associate Visiting Physician, Beth Israel Hospital, Boston, Mass. Edited by Henry A. Christian, A.M., M.D., LL.D. (Reprinted from Oxford Loose-Leaf Medicine with same page numbers as in that work.) Cloth. Pp. 179-194 (188), with illustrations. Oxford University Press, 114 5th Ave., New York 11, 1951.

This monograph, reprinted from the Oxford Loose-Leaf Medicine, presents a comprehensive discussion of the unusual endocrine disease diabetes insipidus. Included are a brief historical résumé, a discussion of the anatomy and physiology of the pituitary gland, a detailed description of the etiology, symptoms, and treatment of diabetes insipidus, and a bibliography of 470 references. Illustrative case reports and laboratory data are included, drawn both from the literature and from the author's personal experience in treating 112 patients with this disease. This book should be of interest to clinicians and to all others interested in endocrine disturbances.

QUERIES AND MINOR NOTES

TREATMENT OF RECURRENT BOILS

To the Editor:—*What is the treatment for preventing recurrent boils in the hair-bearing areas of the skin? The patient is a white man, aged 32. Glucose tolerance tests were normal, and no other abnormal findings objectively or subjectively are present. In the past 15 years the patient has had 30 boils, usually necessitating incision and drainage. A vaccine was made about 12 years ago, with no apparent benefit.*

M.D., New York.

This inquiry was referred to two authorities, whose respective replies follow.—Ed.

Answer.—In patients with recurring furuncles it is advisable to determine the degree of anemia, if any, and the sugar tolerance, as has been done in this case, and to recognize, if present, any other systemic disease. If the patient is anemic, efforts should be made toward overcoming this. The same can be said about the presence of a high blood sugar level, even though diabetes is not demonstrated. The boils should not be incised or drained, as the treatment of the furuncle after it has started is in reality the prevention of a new one. Accordingly, efforts should be made to prevent the dissemination of the bacteria by careful handling of dressings and the use of antiseptic or antibiotic ointments. Local application of moist heat gives relief and hastens the pointing of the furuncle, and the use of penicillin or aureomycin or terramycin will help materially in shortening the course. The use of alcohol sponge baths as a prophylactic measure seems to have merit. Locally, the use of aureomycin ointment, or even ammoniated mercury encircling the boil, with the dressing kept on until the lesion is inactive, is a satisfactory means of preventing spread of the infection. Vaccines have not been very helpful. The prophylactic use of an oral antibiotic, given at the rate of two or three days a week, may be of value in preventing new furuncles.

Answer.—The treatment of chronic recurrent furunculosis is both constitutional and local. Lowered resistance is a contributing factor. Attempts should be made to improve the general health of the patient by means of sufficient rest, adequate sunshine, and vitamins. A diet low in carbohydrates and high in protein should be prescribed. Attempts should be made, if possible, to correct all systemic and visceral disorders, as well as focal infections, such as dead teeth, root abscesses, infected tonsils, prostate, bladder and urinary tract. Autogenous or heterogenous vaccines, as well as nonspecific treatments such as with typhoid vaccine, are valuable in some cases. Parenteral and oral administration of the antibiotics such as penicillin, aureomycin, terramycin and chloramphenicol, sometimes is of value in acute cases. The local therapy depends on the acuteness, chronicity and location of the lesion. In acute cases, wet compresses (boric acid, aluminum acetate solution, bacitracin, terramycin) are helpful. Roentgen therapy is effective in chronic cases, especially those involving the nape of the neck and axillas.

ACTH, CORTISONE AND INFERTILITY

To the Editor:—*I have seen no clear statement on the effect of ACTH and cortisone on the male and female gonads or on sterility. Can you supply this information?*

J. T. McDuffie, M.D., Corning, Calif.

Answer.—A few clinicians are cautiously trying pituitary adrenocorticotropic hormone (ACTH) and cortisone in infertility due to endocrine disorders. Up to the present no significant results have been reported.

OSTEOPOROSIS AND DEMINERALIZATION OF BONE

To the Editor:—*The terms osteoporosis and demineralization seem to be used interchangeably on the x-ray reports that I receive. Are they interchangeable? I have a patient who was given a diagnosis of osteoarthritis and demineralization of bone some years ago, with emphasis on the arthritis, and she was treated accordingly. X-rays were taken by another radiologist; the diagnosis was similar but with the emphasis on the osteoporosis. I would appreciate your suggestions. Also, what would the treatment be?*

George A. Bakke, M.D., Oakland, Calif.

Answer.—The term demineralization of bone covers a much broader field than does osteoporosis; the terms are therefore not interchangeable. Some of the conditions producing demineralization other than osteoporosis are rickets, osteomalacia, hyperparathyroidism, hyperthyroidism, chronic osteoporosis and polyostotic fibrous dysplasia. Osteoporosis is a disease of tissue metabolism and not of calcium metabolism; consequently, it is associated with relatively normal serum calcium and phosphorus levels. Calcium or vitamin D lack per se probably do not cause osteoporosis. There are at least 12 different causes or types of osteoporosis; before outlining treatment one must attempt to differentiate the cause. The most frequently encountered forms are (1) postmenopausal osteoporosis and (2) senile osteoporosis.

The commonest form of osteoporosis is that encountered in women after the menopause, whether it be artificial or normal. There is experimental evidence that postmenopausal osteoporosis is due to estrogen deficiency. A moderate degree of osteoporosis of the spine is almost physiological after the menopause, and the osteoporosis per se probably does not produce pain. Pain usually results from secondary collapse of the vertebrae or marked ballooning of the intervertebral disks together with an invagination of the vertebral plates. Most elderly persons also have osteoarthritis of the spine, which may produce pain. Usually the pain of osteoarthritis is not as severe as that accompanying acute collapse or compression of an osteoporotic vertebra. The patient with painful osteoporosis should be fitted with a Taylor brace or corset with rigid stays and shoulder straps, for the prevention of further pathological fractures of the spine and maintenance of good posture and height. At the same time prolonged immobilization should be avoided, if possible, because of the danger of superimposed atrophy of disuse. The patient should sleep on a firm, straight, nonsagging mattress. Estrogens in the form of estradiol or the synthetic preparation, diethylstilbestrol, might be administered. Albright noted the effect on calcium metabolism of estrogen and androgen in combination was greater than that of either alone in patients with postmenopausal or senile osteoporosis. A suggested combination is as follows: diethylstilbestrol, 0.5-1 mg., together with methyl testosterone, 10-20 mg., daily. It is usually advisable to discontinue the testosterone after two months and sometimes before, if a masculinizing effect becomes evident. The endocrine therapy may have to be modified if it causes edema, since many of the steroids cause sodium retention. Likewise because of the possible danger of cancer it is wise to interrupt the estrogen medication for one week out of every month. The physician should examine the patient at frequent intervals and forever be alert for signs of uterine or mammary carcinoma. Since osteoporosis is due to a deficiency in bone matrix, a high protein diet is indicated; since it is not a disease of calcium and phosphorus metabolism, excessively high intakes of these minerals and of vitamin D are not indicated, although the diet should be adequate in these substances.

Senile osteoporosis is really due to atrophy of the skeleton. It is possible that underfunction of the endocrine glands is responsible in a large measure for the atrophy of old age. The treatment of senile osteoporosis is essentially the same as that of postmenopausal osteoporosis. If testosterone is used in old men, the prostate should be watched and estrogen therapy should

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be given at the same time, since it has been shown that estrogen neutralizes the stimulating action of testosterone on the prostate.

For further information on demineralization of bone and osteoporosis, the work by Albright and Reifenstein is recommended (The Parathyroid Glands and Metabolic Bone Disease, Baltimore, Williams & Wilkins Company, 1948).

DEMINERALIZATION OF CARPAL BONES

To the Editor:—*A 47 year old housewife has had pain in both wrists for a year and a half, aggravated by work. Past history is negative except for anemia of 13 years' duration requiring occasional liver injections. General physical examination is negative. The right wrist is palpably warmer and more swollen than the left. X-rays of both wrists show demineralization of the carpal bones, more on the right than on the left. Hemoglobin is 12.8 Gm., white blood cell count 8,200, sedimentation rate, Westergren, 8 mm. in one hour. A specialist in rheumatology prescribed contrast baths several times daily. Symptoms have slowly become more distressing, and swelling has increased. The sedimentation rate has remained at 8 over a seven month period. There is slight noninflammatory painless swelling of some of the proximal interphalangeal joints. Can you suggest further diagnostic procedures and therapy?*

Robert B. Engstrom, M.D., Mankato, Minn.

Answer.—The clinical picture in this case is that of rheumatoid arthritis, in view of the symmetrical arthritis of both wrists, with beginning involvement of the proximal phalangeal joints. A normal sedimentation rate is unusual in a process of this duration but by no means rules out this diagnosis. The x-ray findings are also consistent. Constitutional symptoms, especially fatigability, anorexia and weight loss would be helpful diagnostically if present, as would vasomotor instability, numbness and paresthesias. No further diagnostic procedures seem indicated. The patient should profit by general conservative therapy, including acetylsalicylic acid (aspirin) in dosage sufficient to control the symptoms, extra rest periods and a high protein, high vitamin diet. Physical therapy should be prescribed in the form of moist heat and active exercises to preserve motion. Light cock-up splints for the wrists should be worn at night, as well as during the day if there is any tendency toward loss of extension. The process does not seem severe enough to warrant use of cortisone or pituitary adrenocorticotropic hormone (ACTH) on a long-term maintenance basis. Brief courses of either agent will probably confer no lasting benefit. The value of gold therapy in rheumatoid arthritis is still controversial, although a trial of this method might be made under strict supervision if the patient fails to respond to conservative treatment over a period of six months.

PROSTATIC OBSTRUCTION

To the Editor:—*What is the effect of diethylstilbestrol on the noncancerous prostate? Is there a rationale for the use of this substance in 5 mg. doses three times daily for about three weeks and once a day on a maintenance basis for benign prostatic hypertrophy when surgery is contraindicated or refused?* *M.D., Pennsylvania.*

Answer.—Several years ago there appeared a report of a group of cases of urinary obstruction caused by noncancerous prostatic enlargement in which there apparently was symptomatic improvement from the administration of diethylstilbestrol. However, these results were not corroborated by subsequent experience of the majority of urologists. Although in some cases there is apparent symptomatic improvement, this usually is temporary. Prostatic obstruction usually is caused by deformity of the bladder neck resulting from changes in the surrounding prostatic tissue. This deformity cannot be affected materially by slight reduction in the size of the prostate gland and requires mechanical removal to correct it. There is no objection to a trial of diethylstilbestrol in the dosage suggested unless the patient reacts unfavorably to the drug. Surgical removal by transurethral methods or by excision has been found to be the best method of treating prostatic obstruction.

TREATMENT OF UVEITIS

To the Editor:—*Is there any specific treatment for uveitis? What is the most common etiology?* *M.D., Texas.*

Answer.—There are two forms of uveitis, the granulomatous and the nongranulomatous. The first, which has a characteristic clinical picture, may be due to any of the granulomatous diseases, such as syphilis, tuberculosis, brucellosis, sarcoidosis and toxoplasma. The nongranulomatous is the serous or rheumatic form. It is considered to be a manifestation of allergotoxic reaction within an eye sensitized to a specific bacterial product. The responsible organisms are not found in the eye in this last form, in contrast to their physical presence in the uveal tract in granulomatous uveitis. The organisms producing nongranulomatous uveitis are usually various strains of Streptococcus hemolytica and the Gonococcus. Undoubtedly, allergens of other organisms or of other material may be offending agents. The specific treatment of granulomatous uveitis is based on the discovery of the underlying cause, if possible. The various causative agents must be eradicated. In the nongranulomatous form, specific treatment is not available as a rule, except in gonorrhea. Every effort should be made to remove foci of infection. A vaccine made from the organisms obtained from a suspected focus is used to desensitize the patient in the usual fashion. The antibiotics are used with the hope that a hidden focus can be affected.

The use of pituitary adrenocorticotropic hormone (ACTH) and cortisone in uveitis probably suspends the active inflammatory reaction within the eye, during which time specific treatment may be fruitful. These substances are not, however, curatives in themselves. Local application of heat and atropine, watching for secondary glaucoma and instillation or subconjunctival injection of cortisone are suggested for all forms of uveitis. Fever treatment is also of value, regardless of the type present.

TUBERCULIN TESTING

To the Editor:—*What is the consensus regarding the significance of intradermal tuberculin tests in different age groups? Is mass tuberculin testing of school children worth while? If so, in what age groups? Does activation of quiescent lesions occur from repetition of the test?*

T. N. Armistead, M.D., Minden, La.

Answer.—1. Intradermal tuberculin testing, or, better stated, subepidermal testing, as represented by the Mantoux method, is the surest and best method in all age groups. Because it is difficult to get consent from mothers to have "needles stuck into their small children," the Vollmer patch test has been used. This method, when properly applied and read, is equally efficient in children, young adults and most adults with thin, white skin. It generally should be limited to these groups, since many adults with thick and dark skin frequently do not react well or at all.

2. Mass tuberculin testing of school children, once the best and perhaps the only method of survey, has generally been abandoned as a major weapon in case finding, because the cost per case found has been considered too much and, furthermore, the roentgenographic method has generally supplanted it.

The whole problem, however, must be evaluated on the type of material to be surveyed, and a large community of adults is best served by the roentgenographic method. Supplementary tuberculin testing is used in certain cases when there is some doubt regarding the diagnosis, to rule out nontuberculous conditions. In sparsely infected communities, in high schools and even in some elementary schools, the tuberculin test may be used to detect infected foci within the communities. For example, if an infant or a child reacts strongly to tuberculin, it indicates recent association with some open case of tuberculosis. Examination of the families of such children may reveal the source of the infection. Even greater use may accrue from the educational value that such a feature creates in a community. Everybody becomes conscious of tuberculosis, from the child to the parent, which is one of the most desirable objectives of public health programs.

3. The best age group, therefore, is the high school group; there is diminishing usefulness in younger age groups.

4. If a tuberculin test is properly performed, no activation of a previous lesion should result. Of course, a heavy dose of tuberculin must not be used. If enough is given to cause a systemic reaction, a reactivation may occur. In the early days of the use of Koch's old tuberculin, many such reactivations took place. Properly graded dosage from 1:10,000 dilution (0.01 mg.) down to 1:10 dilution (10 mg.), with a 72 hour interval between, will not cause reactivation. The weaker dilution of PPD is also considered to be safe.

DANGER OF INHALING CARBON TETRACHLORIDE

To the Editor:—*Would it be harmful to use carbon tetrachloride to clean a tonometer used in ophthalmology? The method of cleaning would be to saturate a piece of cotton with about 1 cc. of the carbon tetrachloride and cleaning the instrument. This would be repeated 10 to 15 times a day, day after day.* *Edward I. Lipsius, M.D., Philadelphia.*

Answer.—A single milligram of carbon tetrachloride fully evaporated under standard conditions will produce 154 parts per million of vapor in a liter of air. If this figure be extended to the total number of milligrams in 1 cm. and then multiplied by the "10 or 15" applications during the brief hours of the medical office day, it will be readily seen that harmful concentrations of carbon tetrachloride may arise. In the immediate breathing zone of the cleaner of the tonometer the vapor concentration may be enormous. Under the assumption of the worst possible situation, in any assumed office 10×10×10 feet, the concentration in the entire area might reach 130 ppm, which well exceeds the maximum allowable concentration of 50 ppm. In addition, some risk of dermatitis from the defatting action of carbon tetrachloride is involved. Since the bactericidal value of carbon tetrachloride is low, there is little justification for its use for the purpose indicated. For chemical cleaning, alcohol, either ethyl or isopropyl, may suffice even though their bactericidal properties are low. The use of carbon tetrachloride to the end indicated is not commendable and is, in fact, risky. If it be deemed needful to apply some chlorinated hydrocarbon, use trichlorethylene. It is much less toxic and still is essentially nonflammable.

PROCTITIS FOLLOWING USE OF AUREOMYCIN

To the Editor:—*I have had occasion to see about 10 patients who had acute proctitis or procto-colitis from one to three weeks after discontinuing the use of aureomycin or terramycin. I am hoping you will be able to give me data on similar cases if such exist and to outline the best form of treatment.*
C. C. Chewning Jr., M.D., Richmond, Va.

Answer.—Proctitis associated with diarrhea or soft bowel movements, tenesmus, pruritus and perianal dermatitis is commonly observed following aureomycin medication. In fact, mucous membrane irritation has been noted in the pharynx, mouth and vagina as well as the rectum. The reaction may vary from a mild catarrhal condition of the tissues to a severe inflammatory process with superficial ulceration. Because of the frequency of these complications, an increasing number of clinicians are limiting the use of this drug to its absolute indications. Similar but less severe reactions occur with chloramphenicol. Allergic sensitivity or a change in bacterial flora are said to be causative. Antihistamine drugs have been helpful. Manifestations described are less notable when aureomycin is administered intravenously, especially if combined with vitamin B complex. However, this mode of treatment is not without hazard to veins and must be carried out with extreme caution. Practically all will improve spontaneously over a period of three to six weeks. Most patients can be kept comfortable during this period with the usual antidiarrheal and antipruritic drugs. Similar experiences have been published (*Brit. M. J.* 1:1184 May, 1950; *Rhode Island M. J.* 33:137 March, 1950; *Proc. Staff Meet., Mayo Clinic,* 24:612 Dec. 7, 1949; *J. A. M. A.* 142:1137 April 15, 1950, and *J. A. M. A.* 142:198 Jan. 21, 1950).

DURATION OF IMMUNITY TO RABIES

To the Editor:—*Of what duration is the immunity produced by human rabies vaccine, as routinely used in prophylactic treatment, in a case of bite from a rabid animal?*
James M. Fraser, M.D., Grand Lake, Colo.

Answer.—Virus-neutralizing antibody appears in the blood after vaccination with commercial vaccine (phenol or ultraviolet irradiated), reaching a peak at about one month, and holds up well for six months. At one year there is a considerable drop in the amount of virus-neutralizing antibody in the blood, but there is still a good deal of active immunity, as shown by experimental work using dogs as the test animal. The Expert Committee on Rabies of the World Health Organization (Technical Report Series No. 28, Expert Committee on Rabies, November 1950, available from the Internation Documents Service, Columbia University Press, New York City) makes the following recommendation: If reexposure occurs within three months of the first course of vaccine, no treatment is necessary unless the second exposure is of a severe type. If the interval is between three and six months, two reinforcing doses of vaccine given a week apart are indicated, whereas, if more than a six month interval has elapsed, the treatment should be on the same basis as if it were an original exposure. The aforementioned publication gives a concise and comprehensive presentation of rabies prophylaxis.

CONTROL OF DIABETES IN EMPLOYEES

To the Editor:—*We employ a number of diabetics in an industry where minor accidents are frequent and where there are occasional serious traumatic injuries and burns. We do not expect perfect control of our diabetic employees and in the past have required that their nonfasting blood sugar, taken about two hours after a meal, be kept at about 200 mg. per cubic centimeter of whole blood or lower. Several employees have objected to having blood sugar determinations done every two months. The union has now taken up the matter and is quoting authorities. The clinical school of thought apparently does not care how high the blood sugar goes, as long as the patient is taking insulin and shows no clinical symptoms, feels well and is able to work. Faced with the two opposite views, we are at a loss as to how to attempt control. May we have your opinion as to proper check on the control of diabetes?*
H. K. Montgomery, M.D., Dayton, Ohio.

Answer.—The query involves a decision as to whether the control of diabetes pays and, second, what constitutes control. Accumulating evidence shows that those diabetics whose disease is well controlled live longer and have fewer disabling complications. Life insurance companies, before accepting diabetics as risks, give particular consideration as to whether the applicants are under the regular supervision of a physician. That practice might well apply to a firm employing diabetics. A diabetic who does not drink at all is preferred by certain insurance companies. The physician's report about reactions, acidosis and adherence to diet and the wise use of insulin would count much; so, too, would maintenance of weight approaching normal standards; laboratory evidence should be furnished that the urine is sugar free at least once in a day and an abnormally low blood sugar level should be considered just as serious as a high blood sugar level. Physicians' reports and laboratory tests should be rendered every three months. An x-ray of the chest before employment and annually thereafter is desirable and for reference later an x-ray of the lower extremities and an electrocardiogram for those with diabetes of 10 or more years' duration or for those above the age of 40 years.

A reasonable and safe range, without specifying exact figures for blood sugar values, would be 130 to 200 mg. per 100 cc., venous blood, Folin-Wu, before meals. Standards would be stricter if the patients worked with machinery. Permission would be refused to engage in hazardous work involving safety of others. These standards are stated somewhat liberally, but they provide a margin of safety and yet reflect fairly good control of diabetes.

CHRONIC PROSTATITIS AND OLIGOSPERMIA

To the Editor:—*A young man had nongonorreal urethritis four years ago. He was treated with antibiotics, sulfonamides and urethral instillations of silver nitrate. One month later he had symptoms of acute prostatitis. He was apparently cured with massage and dilatation but a few weeks later had a feeling of pressure in the perineum and rectum and nocturnal ejaculations. He was treated and was well for four months; then the same symptoms returned, with prostatorrhea after defecation. The sperm fluid showed oligospermia. He has coitus once every one or two months. What treatment is indicated?*

David Lederman, Bogotá, Colombia, S. A.

Answer.—That chronic prostatitis would explain the various symptoms of the patient or the clinical data noted is open to question. Chronic uncomplicated prostatitis usually does not cause prolonged perineal pain, nocturnal ejaculations or oligospermia. It is assumed that gonococci have been repeatedly excluded by microscopic examination and by culture. The possibility of prostatic calculi should be excluded by means of a roentgenogram including the bladder and prostatic area. Cystoscopic and urethroscopic examination would also be desirable to exclude stricture and the presence of granulations or dilated ducts in the prostatic urethra. Prostatorrhea in itself is not of any great clinical importance, except that it causes the patient to be apprehensive; although it sometimes persists when prostatic infection is largely eliminated, it usually is self limiting and if uncomplicated would require no prolonged treatment.

The significance of oligospermia is dependent on a number of factors. It is taken for granted that there is no permanent constriction of both vasa deferens. It would be advisable to repeat examination of the semen, and the specimen should be collected in a clean, warm flask, the examination being made immediately afterward. The specimen should be obtained at least three weeks after the last act of sexual intercourse. If on repeated examination the sperm count is under 60,000, further examination should be made. The existence of pathological sperms should be noted and the various types enumerated. A testicular biopsy for determination of the nature of the basal cells might also be necessary to guide treatment. There might be a large psychological factor in the patient's attitude toward his symptoms. He should be assured that chronic prostatitis in itself is not a serious complication and will gradually subside if left alone. He should also be assured that oligospermia can be transient and corrected unless other complications are present. It might be well to discontinue local treatment for a while, assuming that his sexual technique precludes the possibility of reinfection.

CATARACTS

To the Editor:—*What is the latest therapy in the early treatment of cataracts?* *M.D., New York.*

Answer.—There is no method of treatment that will reverse the pathological changes that constitute the opacities of the human lens. The loss of transparency of the lens capsule and its fibers and cellular elements is the result of processes initiated by chemical or physical trauma in a broad sense; it is not a disease process per se.

It is generally agreed that cataracts are induced by some constitutional diseases, such as diabetes and parathyroid deficiency, and by inadequate nutrition, as in arteriosclerosis, but a generally satisfactory response to treatment of these diseases does not alter the changes in the lenses once they have appeared. There is no assurance that cataract will or will not develop during the course of such a disease, and there is no basis for prophylactic measures.

Incipient cataract may change in appearance and vary in transparency from time to time so as to influence visual acuity to a small extent over a period of a few months, but such changes are not brought about by any kind of nonsurgical therapy given with the intent of producing certain recognizable and controllable alterations. The latest therapy in the early treatment of cataract is no better than the oldest.

VINYLIDENE CHLORIDE RESINS

To the Editor:—*Have any cases of lumite poisoning been reported over the country? A young woman working at a lumite plant has developed a peculiar type of leukocytosis that does not resemble mononucleosis, granulocytosis or leukemia.* *Hartwell Joiner, M.D., Gainesville, Ga.*

Answer.—Lumite is the trade name for certain woven plastic products derived from one or more vinylidene chloride resins. This type of plastic in finished form long has been regarded as nontoxic. In suspected occupational disease, attention is often focused on the major work material and operation without due regard for ancillary materials and processes. While lumite as such possibly may be disregarded in disease causation, a precise knowledge of the details of work might reveal an offending agent; for example, in the present instance if cotton entered some products and led to cotton dust, the possibility of "mill fever" arises. This disease involves the lungs primarily and calls for roentgen examination. Without any incrimination whatever, it is indicated that better exploration of minor work steps might be productive. For extensive information on vinylidene chloride resins the inquirer should consult the "Modern Plastics Encyclopedia," New York, Plastics Catalogue Corporation, 1947.

FOUL TASTE BEFORE SPELLS OF UNCONSCIOUSNESS

To the Editor:—*A 60 year old man has fallen three times and was unconscious for about 30 minutes each time. He told me that each time just before he fell an odor or taste like rotten eggs came up in his throat. This man used to eat two eggs for breakfast, and each spell has come on a little while after breakfast. He has some gallbladder difficulty, but no other abnormality. Could the eggs have caused a compound to form in his stomach to cause the unconsciousness?*

Perry Parrigin, M.D., Monticello, Ky.

Answer.—Attacks of loss of consciousness immediately preceded by odors or tastes (usually unpleasant) most commonly occur as the result of a tumor in one or the other temporal lobe of the brain. It is far more likely that the patient is suffering from some lesion of the brain, most likely a tumor, than that his attacks are the result of a gastric disturbance. This man should have a thorough neurological examination as soon as possible.

TALCUM IN PERICARDIAL CAVITY FOR CORONARY OCCLUSION

To the Editor:—*Information is requested on an operation for the relief of angina pectoris in which talcum is inserted into the pericardial sac in an attempt to increase the circulation. This has been recently featured in a popular magazine.*

Benjamin Trachtman, M.D., Brooklyn.

Answer.—Dr. Samuel A. Thompson of New York places talcum in the pericardial cavity as a method of treatment for coronary artery disease. Up to the present time he has operated on 45 patients and reports that 85 per cent of the patients show variable degrees of improvement. The operation was based on animal experimentation reported in the *Annals of Internal Medicine* (March 1942, page 495). These experiments showed that talcum in the pericardial cavity had a protective action against ligation of a major coronary artery. Schildt, Stanton and Beck repeated these experiments (*Ann. Surg.* 118:38 [July] 1943); they did not find that talcum had a beneficial effect after coronary artery occlusion. These authors did not apply the operation to patients. In view of this difference of opinion, it would appear desirable that this work be rechecked by another experimental study.

PSEUDOHYPERTROPHIC MUSCULAR DYSTROPHY

To the Editor:—*Is any new information available for treatment of pseudohypertrophic muscular dystrophy?*

William F. Hunting, M.D., Cincinnati.

Answer.—Unfortunately there is no known treatment of any value for this condition.

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EFFECT OF PHYSICAL ACTIVITY ON PROGNOSIS OF POLIOMYELITIS

Robert M. Albrecht, M.D.
and
Frances B. Locke, M.S., Albany, N. Y.

Reports of severe paralytic poliomyelitis apparently precipitated by strenuous exertion have appeared in the literature. Russell,[1] in England, studied statistically two series of poliomyelitis cases: one of 44 cases and an additional series of 100 cases.[2] He concluded that exercise during the preparalytic stage greatly increases the danger of paralysis, and that bed rest considerably reduces it. Hargreaves,[3] who studied 30 cases in Cornwall, and Horstmann,[4] who studied 411 cases chiefly from California and North Carolina, have presented data to support his view. However, they could find no evidence that activity before the preparalytic stage influenced paralysis, or that activity at any stage affected the severity of bulbar paralysis.

The present study was undertaken in New York State in July 1949. Its purpose was to determine whether, with certain changes in study technique, the severity of poliomyelitis could be ascribed largely to the extent of physical activity at the time of illness. It was thought that a positive relation would be of major importance because one could then prevent much of the paralysis by keeping patients in bed during the critical period.

MATERIALS

In 1949 there were 381 poliomyelitis cases occurring in patients aged 3 years or more reported from Nassau County. This was a desirable site for study because the Nassau County Health Department has excellent facilities for the follow-up of patients. Also, the diagnoses of poliomyelitis in the cases reported were unusually reliable because doubtful cases were examined by consultation teams, provided jointly by the County Health Department and the County Medical Society. This study is, therefore, a cooperative effort of the Nassau County Health Department and the New York State Department of Health.

Table 1 shows the age and sex distribution of the reported cases in patients aged 3 years or more. Patients under the age of 3 years were not included because of the difficulty of estimating the extent of their activity.

Two hundred and eighty-four patients were investigated in this study. The great majority of those reported but not investigated were cases reported only after the field study was completed in early October. Of the 284 patients investigated, 84 were excluded from the report, most of them because the extent of paralysis was not determined at the prescribed time, others because of vague histories or because the time of onset of the meningeal stage could not be accurately determined. Therefore, this paper reports on 200 cases, whose age, sex and type of paralysis are described in Table 2. The cases presented are a fairly representative sample of the epidemic.

METHOD

In each case a detailed history of the symptoms and of the physical activities from three days before the onset of illness to a number of days after the onset was taken. Seventy-five per cent of the histories were done by one of us (R. M. A.). The remainder, taken by three other investigators, were included in the study because the techniques used by them were comparable to Dr. Albrecht's. Most of the histories were taken within six weeks after the onset of the disease. We found, as Horstmann did, that the events connected with the illness were generally clearly remembered by the patient; the few exceptions were dropped from the study.

From the Bureau of Epidemiology and Communicable Disease Control of the New York State Department of Health; Assistant Director (Dr. Albrecht) and Biostatistician (Mrs. Locke).

This study was under the guidance of Dr. Robert F. Korns, Director of the Bureau of Epidemiology and Communicable Disease Control of the New York State Department of Health. Dr. Anne Bahlke, New York State Department of Health, Dr. Frederic Vosburgh, Nassau County Health Department, and Dr. Warren Winkelstein, Erie County Health Department, assisted in the collection of data. Miss Louise Hayward, New York State Department of Health, gave technical assistance in revising the muscle-grading forms. The cooperation of the physicians and the hospitals, and the work of the physiotherapists, were essential for the completion of this study.

[1] Russell, W. R.: Poliomyelitis: The Pre-Paralytic Stage, and the Effect of Physical Activity on the Severity of Paralysis, Brit. M. J. 2: 1023-1028 (Dec. 27) 1947.

[2] Russell, W. R.: Paralytic Poliomyelitis: The Early Symptoms and the Effect of Physical Activity on the Course of the Disease, Brit. M. J. 1: 465-472 (March 19) 1949.

[3] Hargreaves, E. R.: Poliomyelitis: Effect of Exertion during the Pre-Paralytic Stage, Brit. M. J. 2: 1021-1022 (Dec. 11) 1948.

[4] Horstmann, D. R.: Acute Poliomyelitis: Relation of Physical Activity at the Time of Onset to the Course of the Disease, J. A. M. A. 142: 236-241 (Jan. 28) 1950.

The term "paralysis," as used in this report, refers to other than bulbar paralysis, unless otherwise stated. The term "meningeal stage" describes the period of the illness characterized by one or more of the following: a positive Kernig sign, stiffness of the neck or back, and pain in the head, trunk, or thighs. This term corresponds to Russell's preparalytic stage. Several cases were dropped because the onset of the meningeal phase could not be determined accurately.

Physical activities were classed in the histories as follows: bed rest; light activity, such as resting at home; normal activity, such as housework, office work, school or normal play; heavy activity, such as manual labor or strenuous sports or play. (Because there were only five examples of heavy activity in the meningeal stage, they are grouped with "normal activity" in Tables 3*A* and 3 *B*. However, the type of paralysis in these five is described separately later.)

TABLE 1.—*Reported Cases of Poliomyelitis by Age and Sex, Nassau County, New York State, 1949**

	Both Sexes		Males		Females	
Age	No.	%	No.	%	No.	%
3- 4	65	17.1	43	20.1	22	13.2
5- 9	129	33.9	75	35.0	54	32.3
10-19	83	21.7	56	26.2	27	16.2
20 and over	104	27.3	40	18.7	64	38.3
Total	381	100	214	100	167	100

* Excluding patients under 3 yr.

TABLE 2.—*Poliomyelitis Cases in Nassau County Study, 1949, with Age, Sex and Type of Paralysis*

		Type of Paralysis Per Cent Distribution						
Age	Sex	Non-paralytic	Bulbar	Spinal	Deaths	Total	Total No.	% of Total for Sex
3-4	M	22.2	11.1	55.6	11.1	100	9	8.3
	F	8.3	25.0	58.4	8.3	100	12	13.1
5-9	M	42.1	13.2	44.7	0.0	100	38	35.2
	F	44.9	3.4	48.3	3.4	100	29	31.5
10-19	M	29.7	8.1	48.7	13.5	100	37	34.3
	F	40.0	5.0	45.0	10.0	100	20	21.7
20 and over	M	19.2	7.7	38.5	34.6	100	24	22.2
	F	12.9	6.5	64.5	16.1	100	31	33.7
Total	M	31.5	10.2	44.4	13.9	100	108	100
	F	28.3	7.6	54.3	9.8	100	92	100
	Both Sexes	30.0	9.0	49.0	12.0	100	200	.....

The physical activities of the patients were rated by one of us (F. B. L.) who, in order to exclude bias, was deliberately kept uninformed of the extent of their paralysis at the time of rating. In rating the cases, both the type and duration of activity were considered.

MUSCLE GRADINGS

Since the evaluation of the extent of paralysis depends on the skill of the observer, and since the paralysis itself varies with time, an attempt was made to have all of the patients muscle-graded by trained physiotherapists approximately six months after the onset of illness. Actually, all of the cases presented here were graded between five and one-half and seven months after onset. Between the extremes of this period, little change in status can be expected.[5] All except 12 of the gradings were performed by trained physiotherapists from the Nassau County Health Department (the majority), the New York State Rehabilitation Hospital at West Haverstraw or the St. Charles Hospital for Crippled Children at Port Jefferson, N. Y. The 12 exceptions were graded by physicians.

TABLE 3A.—*Degree of Paralysis, by Age and Maximum Activity on Day of Onset of the Meningeal Stage**

	Maximum Activity on Day of Onset								
	Normal			Light			Bed		
Age	S †	M †	L †	S †	M †	L †	S †	M †	L †
3- 9	3	3	14	6	1	13	6	1	31
10-24	9	1	21	2	..	10	8	1	13
25-49	17	3	6	2	..	5	2	1	4
Total	29	7	41	10	1	28	16	3	48

* Excludes bulbar cases.

† S = severe paralysis or death; M = moderate paralysis; L = light or no paralysis.

All of the gradings were tabulated on standard forms for muscle grading used routinely by the New York State Department of Health. These forms are the same as those used by the National Foundation for Infantile Paralysis and list 134 muscles or muscle groups. These 134 were condensed to 82, on the bases of spinal nerve innervation and the ability of the physiotherapist to distinguish accurately the functioning of different muscles, using the method of Bahlke and Perkins.[6] Each muscle or muscle group has a value ranging from zero to five. Zero represents total paralysis; and five normal function. Therefore, a nonparalytic patient is given a score of 410 (5 × 82). Under the heading "severe paralysis" are listed deaths and scores ranging up to 339. "Moderate paralysis" includes ratings from 304 to 389; and "light or none," ratings from 390 to 410.

RESULTS

There was found no correlation between the severity of paralysis and the activity in the three days preceding the onset of illness; nor did activity in the three days before the onset of the meningeal stage seem to influence subsequent paralysis. The bulbar cases were too few to permit conclusions to be drawn.

TABLE 3B.—*Per Cent Light or No Paralysis by Age and Maximum Activity on Day of Onset of the Meningeal Stage**

	Maximum Activity on Day of Onset					
	Heavy-Normal		Light		Bed Rest	
Age	Total No.	% Light or No Paralysis	Total No.	% Light or No Paralysis	Total No.	% Light or No Paralysis
3- 9	20	70.0	20	65.0	38	81.6
10-24	31	67.7	12	83.3	22	59.1
25-49	26	23.1	7	71.4	7	57.1
Total	77	53.2	39	71.8	67	71.6

* Excludes bulbar cases.

Table 3*A* describes for each age group the maximum activity on the day of onset of the meningeal stage and the resulting paralysis.

Table 3*B* shows for each age group the per cent which had light or no paralysis, according to the maximum activity on the day of onset of the meningeal stage. The data for Table 3*B* are taken from Table 3*A*.

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[5] Lenhard, R. E.: Prognosis in Poliomyelitis, J. Bone & Joint Surg. **32-A:** 71-79 (Jan.) 1950.

[6] Bahlke, A. M., and Perkins, J. E.: The Treatment of Preparalytic Poliomyelitis with Gamma Globulin, J. A. M. A. **129:** 1146-1150 (Dec. 22) 1945.

There is no statistically significant relationship between severity of exercise and severity of paralysis, except in adults.[7]

Data concerning the maximum activity in the first three days of the meningeal stage are not presented. They are practically identical with those shown in Table 3*A*.

Table 4 describes the maximum activity on the day of onset of the meningeal stage of those who died. Ten out of 24 deaths occurred in patients with restricted activity.

Only five patients had heavy exercise on the day of onset of the meningeal phase or thereafter. Their ages ranged from 17 to 41. Of the five, one died, three were severely paralyzed, and one had no paralysis.

Table 5 describes paralysis in individuals according to their handedness. Only 80 patients were studied in this regard. Data on 50 are presented here; 27 others were nonparalytic and 3 died.

TABLE 4.—*Deaths by Age, and Maximum Activity on Day of Onset of the Meningeal Stage**

	Maximum Activity			
Age	Heavy	Normal	Light	Bed
3- 9	..	1	1	1
10-24	..	4	2	3
25-49	1	8	1	2
Total	1	13	4	6

* Including four bulbar deaths: two patients had normal exercise; one, light; and one, bed rest.

TABLE 5.—*Handedness and Site of Paralysis*

Handedness	Left Side More Paralyzed than Right Side	Right Side More Paralyzed than Left Side	Both Sides Equally Paralyzed
Left	0	2	3
Right	7	9	29

Horstmann[4] showed that right-handed individuals tend to have more right-sided paralysis; and left-handed, more left-sided paralysis. No such trend is seen in this table; but the number of patients, especially left-handed, is too small to permit definite conclusion.

COMMENT

Russell[2] stated: "Complete physical rest in bed from the onset of the preparalytic stage greatly reduces the danger of severe paralysis. Severe physical activity at this stage is almost suicidal, while the continuance of even average physical activity is dangerous."

Our data do not support this view. There was no indication in children that a severe outcome was due to activity shortly before the onset of the illness, or at any time during illness. In adults, severe paralysis was more common in those who continued their activity after the onset of the meningeal stage than in those who were in bed during this period. The difference in the adult groups is statistically significant. However, deaths and severe residual paralysis in adults could not be entirely attributed to their activity at this period.

Since adults are more apt than children to continue their routine when ill, it must be determined whether the severity of paralysis of adults is due to their activity or to their age. Our data indicate that age is an important factor and that adults, irrespective of their activity, are more severely affected than children.

Certainly many factors affect the prognosis of poliomyelitis. The previous authors did not claim that severe paralysis was due in all cases to excessive activity, or that bed rest protected at all times from moderate or worse paralysis. They show many cases to the contrary. One factor affecting prognosis is age. Other factors, ill defined, may be the nature of the virus, previous experience with it, the size of the infecting dose and constitutional factors.

It should be noted that our patients were examined five and one-half to seven months after onset; Russell's, in convalescence; Hargreaves', after three months' treatment; Horstmann's, two to three months or more after onset.

Russell and Horstmann did not indicate precisely when their patients were examined. Because the rate of recovery of muscle function is more rapid at first, it is especially important early in convalescence to examine all of the patients at relatively the same time. If this is not done, a difference in the degree of paralysis noted can result merely from a difference in the time of examination.

The epidemic we studied consisted of patients reported by experienced physicians to have poliomyelitis. The age and sex distribution and the proportion of deaths and paralytic cases were those of the usual poliomyelitis epidemic in this state. In this outbreak, the deaths and the cases of severe residual paralysis could not be substantially attributed to the degree of activity of the patient, either shortly before his illness or at any time during it. Parenthetically, the fact that there were only five instances of heavy exertion in the meningeal stage was not reflected in an epidemic of unusual mildness.

SUMMARY AND CONCLUSIONS

1. Two hundred patients from the 1949 poliomyelitis epidemic in Nassau County, New York, were studied concerning their physical activity from three days before to a number of days after the onset of illness, and the degree of residual paralysis five and one-half to seven months after onset.

2. Deaths and severe paralysis in children are not related to the degree of physical activity either shortly before the onset of illness or at any time during the illness.

3. Deaths and severe paralysis in adults may be attributed in part to the degree of physical activity in the meningeal stage.

4. Age is a major factor in the prognosis of poliomyelitis. Adults, irrespective of activity, are more severely affected than children.

5. Factors other than age and activity are of major importance in the prognosis of poliomyelitis.

39 Columbia St.

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[7] In the age group 25–49, a four-fold table combining severe and moderate paralysis, and light and bed activity, has a Chi Square of 6.6 ($P = .01$).

EFFECT OF TRANSPORTATION ON SEVERITY OF ACUTE POLIOMYELITIS

M. Bernard Brahdy, M.D., Mount Vernon, N. Y.
and
Selig H. Katz, M.D., New York

Often poliomyelitis develops in adults and children in communities where there are no hospitals or where the nearby hospitals are not equipped for their care. Many of these patients are transported long distances to hospitals especially equipped and staffed for the treatment of poliomyelitis. For the past two decades we have had the impression that the disease was severer in patients who were transported long distances. To determine whether this impression was correct, we reviewed the case records of patients admitted to the Willard Parker Hospital during the poliomyelitis epidemic of 1949.

BASES OF ANALYSIS

The diagnosis of poliomyelitis was made on accepted criteria: namely, characteristic changes in the spinal fluid in conjunction with either stiffness of the neck and back muscles or the presence of weakness or paralysis. We determined the community in which each patient became ill with symptoms referable to the central nervous system. This was done by reference to the history given on admission and by interviewing most of the patients old enough to give satisfactory information. These data were checked with the records of the New York City Health Department.[1]

For the purpose of analysis, patients admitted to the Willard Parker Hospital were divided into groups of local patients and transported patients. Most of the local patients came from the borough of Manhattan, in which Willard Parker Hospital is located, and the adjacent borough of the Bronx. Only a few came from Brooklyn or Queens, because these boroughs had facilities for the care of patients with poliomyelitis. Those coming from beyond this area were classified as transported patients. Of course, local patients were also transported to the hospital, but only relatively short distances.

Many New Yorkers leave the city some time during the summer or early autumn and thus become potential candidates for our group of transported patients. For that reason we limited our analysis to this time of the year, when a significant number of both local and transported patients were hospitalized. We included all patients with poliomyelitis admitted to the hospital from June 13 (the date of the first admission of a patient with poliomyelitis in 1949) to Oct. 31, 1949.

We had difficulty in establishing criteria of severity of the disease for the purpose of comparing one patient with another. Does transient paralysis of all extremities indicate a more serious illness than permanent paralysis of one deltoid muscle? Is a paralysis of the facial muscles worse than paralysis of an anterior tibial muscle? To obviate this difficulty we used a definite end point as a criterion of severity; namely, the survival or death of the patient. To determine the immediate effect of transportation, we also noted whether death occurred within 24 hours after admission to the hospital

MATERIAL

During the 20 week period from June 13 to October 31, a total of 493 patients with poliomyelitis were admitted to the hospital. There were 380 local patients and 113 transported patients. The average distance traveled by the local patients was seven miles; the average distance traveled by the transported patients was 85 miles; the median distance was 70 miles.

The distribution of the patients by sex was similar in the two groups. There were 228 males and 152 females in the local group and 67 males and 46 females in the transported group.[2]

TABLE 1.—*Age Distribution of 380 Local Patients and 113 Transported Patients Admitted to the Willard Parker Hospital from June to November 1949*

Age Group, Years	Local Patients		Transported Patients	
	No.	%	No.	%
0- 4	97	25.7	22	19.5
5- 9	111	29.3	44	38.7
10-14	78	20.4	31	27.4
15-19	33	8.6	7	6.3
Over 20	61	16.0	9	8.1
Total	380	100.0	113	100.0

TABLE 2.—*Duration of Illness Before Admission to Willard Parker Hospital*

	Duration of Illness, Days
Local patients	
All	3.3
All dying	3.7
All dying within 24 hours	3.0
Transported patients	
All	3.4
All dying	3.4
All dying within 24 hours	3.5

The age distribution of the patients in the two groups is shown in table 1. The transported group had a greater percentage of patients between 5 and 14 years than the local group. This is to be expected, because in the New York area many children in this age span are sent to camps or taken to vacation resorts for the summer. It will be shown later that the difference in age distribution did not affect the comparability of the two groups.

The averages of the duration of the illnesses in the local group and the transported group are tabulated in table 2. From the time of onset of meningeal symptoms to the time of admission to the Willard Parker Hospital, the average duration of the illness was practically the same in the two groups. The average duration of the illness before admission in all patients who died was 3.7 days for the local patients and 3.4 days for the transported patients. The average duration of the illness in the patients who died within 24 hours after admission was three days for the local group and 3.5 days for the transported group.

To determine whether the more seriously ill patients were selected for transportation at the time the original diagnosis of poliomyelitis was made, information was requested from as many as possible of the doctors who saw the patients at the onset of their illness. Satisfactory data were obtained for 66 of

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Read before the New York Pediatric Society, March 1, 1950, New York.

[1] Medical inspectors of the Department of Health collected detailed information on all patients with poliomyelitis in New York City. Dr. Morris Greenberg, Director, Bureau of Preventable Diseases, New York City Department of Health, granted permission to review the collected data pertaining to our patients.

[2] $X^2 = 0.017$, standard value 90 per cent $= 0.0158$. The difference between the two groups is such as might occur by chance in about 9 out of 10 instances.

the 113 transported patients. Twenty-six came from an area where there was a small contagious disease hospital. Most of the seriously ill patients (those with bulbar symptoms) and the nonparalytic patients were kept in this hospital. The patients with the following types were sent to the Willard Parker Hospital: nonparalytic 2, spinal 19, bulbospinal 2 and bulbar 3. The percentage of all the patients with bulbar involvement in this group is 19, which is less than in our total group (table 3). Six other patients came from orphanages and were transferred to us as soon as the diagnosis was made. The rest of our patients were on vacation in small communities where local facilities for their care were not adequate. The physicians sent their patients to the hospitals nearest the city of the patient's residence as soon as the diagnosis was made. From the information obtained there is no evidence to indicate that the more seriously ill patients were selected for transportation.

TABLE 3.—*Final Diagnosis for Local and for Transported Patients*

Types of Poliomyelitis	Local Patients No.	Local Patients %	Transported Patients No.	Transported Patients %
Nonparalytic	125	33	22	20
Spinal	177	46	54	48
Bulbospinal	38	10	23	20
Bulbar and encephalitic	40	11	14	12
Total	380	100	113	100

The final diagnosis for each patient was classified as either nonparalytic, spinal, bulbar, bulbospinal or encephalitic poliomyelitis. The final diagnosis was made when the patient was discharged from the hospital or after several weeks of hospitalization. For the transported patient the diagnosis would reflect changes in the course or progression of the disease, including those due to transportation. In table 3 the two groups of patients are tabulated according to the final diagnosis, except that the bulbar and encephalitic types are combined. The percentage incidence of patients with the spinal type was approximately the same in each group. The transported group had a higher incidence of patients with the bulbospinal type and a lower incidence of patients with the nonparalytic type.

The patients with paralytic and encephalitic involvements were observed in the hospital for one to six months. Thirty-eight patients died during this time. Most deaths from poliomyelitis occur within two weeks after the onset of the illness. Thirty-five of our 38 deaths occurred within two weeks. One of the remaining three deaths occurred after 17 days, another after 37 days and the third after 120 days. It has been our experience that some patients who receive respirator treatment die from massive atelectasis following an infection of the upper respiratory tract contracted after discharge from the hospital.[3] However, transportation during the acute stage of the disease would have little bearing on such fatalities.

TABLE 4.—*Fatality Rates in Local and Transported Groups Calculated on Basis of All Patients and Also on Basis of Patients with Bulbar and Encephalitic Involvement*

	Number of Patients	Number of Deaths	Rate of Fatality, Per Cent
All patients			
Local	380	20	5.3
Transported	113	18	16.0
Patients with bulbar and encephalitic involvement			
Local	78	19	24.4
Transported	37	17	46.0

ANALYSIS

Among the 380 local patients there were 20 deaths, a case fatality rate of 5.3 per cent. Among the 113 transported patients there were 18 deaths, a case fatality of 16 per cent (table 4). A fatality rate that is three times greater in one group than in another is obviously significant. However, it seemed advisable to analyze the death rate on a different basis. The nonparalytic and the spinal types of cases contribute little to the fatality rate. Therefore, these were excluded and only those patients with bulbar or encephalitic involvement were used in calculating the fatality rate.[4] All the deaths, except one in each group, were of patients with bulbar or encephalitic involvement. There were 78 such patients, with 19 fatalities in the local group, giving a fatality of 24.4 per cent. In the transported group there were 37 patients, with 17 fatalities, giving a case fatality rate of 46 per cent (table 4). The difference of 21.6 per cent is statistically significant.[5]

In the discussion of the age distribution of our patients, it was noted that there was a predominance of patients between 5 and 14 years of age in the transported group (table 1). To determine whether this difference in the age distribution in our two groups favored a higher fatality rate in the transported patients, we applied the age-specific case fatality rates for the entire city of New York in 1949 (table 5)[6] to each of our age groups (table 1). This gives the expected number of deaths for each age group and the expected total case fatality rate (table 6). The expected case fatality rate by this calculation is higher in the local group, whereas actually it was higher in the transported group. Therefore the difference in age distribution did not favor the higher fatality rate which occurred in our transported patients.

TABLE 5.—*Distribution and Fatality Rates by Age Group of 2,446 Patients with Poliomyelitis in New York City in 1949*

Age Group, Years	Patients Number	Patients Per Cent	Fatality Rate, Per Cent
0- 4	718	29.3	4.2
5- 9	784	32.1	6.1
10-14	415	17.0	5.3
15-19	202	8.3	17.3
Over 20	327	13.4	13.5
Total	2,446	100.0	7.3

TABLE 6.—*Expected Deaths and Fatality Rates in Local and Transported Patients Obtained by Applying Age Specific Case Rates of New York City for 1949*

Age Group, Years	Local Patients No.	Local Patients No. of Expected Deaths	Transported Patients No.	Transported Patients No. of Expected Deaths
0- 4	97	4.07	22	0.92
5- 9	111	6.77	44	2.68
10-14	78	4.13	31	1.64
15-19	33	5.71	7	1.21
Over 20	61	8.24	9	1.22
Total	380	28.9	113	7.7
Expected case fatality rate		7.6%		6.8%

During the first 24 hours after admission to the hospital, four local patients died (20 per cent of the 20 fatalities in this group). During the first 24 hours, nine of the transported patients died (50 per cent of the 18 fatalities in this group). The difference is statistically significant.[7]

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[3] Brahdy, M. B., and Lenarsky, M.: Respiratory Failure in Acute Epidemic Poliomyelitis, J. Pediat. 8:420 (April) 1936.

[4] The suggestion for such an analysis was made by Mr. H. H. Marks, Manager, Statistical Bureau, Metropolitan Life Insurance Company.

[5] $X^2 = 5.40$, standard deviation 2 per cent = 5.412. The possibility that this difference is a result of chance is no greater than two in 100.

[6] Greenberg, M.; Siegel, M., and Magee, M. C.: Poliomyelitis in New York City in 1949, N. Y. State J. Med. 50:1119 (May 1) 1950.

COMMENT

The local group and the transported group were found sufficiently similar to permit evaluation of the factor of transportation. The groups were analyzed on the basis of age and sex distribution, the duration of the illness before admission to the Willard Parker Hospital and information obtained from physicians referring the patients to the hospital. It would have been desirable to compare the two groups according to the type or extent of involvement present when the diagnosis was first made. However, sufficient information was not available for the transported patients.

The fatality rate was calculated first on the basis of all patients in each group. The patients who were transported long distances had a fatality rate three times that of the local patients.

Then the fatality rate was calculated for those patients who had bulbar or encephalitic involvement, according to the final diagnosis made in the hospital. On this basis the fatality rate in the transported group was almost twice that in the local group.

The final analysis was of the deaths occurring soon after the patients were admitted to the hospital. The average duration of the illness in the patients who died within 24 hours after admission was practically the same in both groups (table 2). Therefore, this time factor did not affect the fatality rate in the first 24 hours. It seems likely that the greater mortality in the transported group, occurring shortly after admission to the hospital, is due to the long trip during the acute stage.

The harmful effect of physical activity on the severity of poliomyelitis was shown by Russell[8] and by Hargreaves.[9] Russell questioned 44 patients old enough to fix the time of onset of meningeal symptoms and the amount of physical activity, work or play, during the early days of their illness. He found that the amount of physical activity after the onset of meningeal symptoms bore a direct relation to the degree of muscle paralysis. Hargreaves in a similar analysis of 30 cases confirmed the conclusions of Russell. Hargreaves also showed that the maximum exertion in one day after the onset of meningeal symptoms had a more deleterious effect on the prognosis of poliomyelitis than the aggregate of physical activity during the entire period before hospitalization. Recently, Horstmann,[10] in an intensive study of 411 cases from three epidemic areas in this country, confirmed the conclusions of Russell and Hargreaves. Our experience based on fatality rates indicates that long transportation also has a deleterious effect.

Whether the treatment of patients during the acute stage of poliomyelitis should be decentralized or whether the methods of transportation should be improved requires further study.

SUMMARY

Fatality rates are recorded for a group of patients with poliomyelitis who were transported to the hospital over long distances and for a comparable group of patients who were transported short distances. In the same groups the deaths which occurred within 24 hours after admission to the hospital are recorded. All patients with poliomyelitis admitted to the Willard Parker Hospital between June 13 and Oct. 31, 1949 are included. The results indicate that transportation over long distances may be harmful to a patient in the acute stage of poliomyelitis.

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[7] $X^2 = 3.788$, standard value of 5 per cent = 3.841. The possibility that this difference occurred by chance is no greater than approximately 1 in 20.

[8] Russell, W. R.: Poliomyelitis: The Early Paralytic Stage and the Effect of Physical Activity on the Severity of the Paralysis, Brit. M. J. **2**: 1203 (Dec. 27) 1947.

[9] Hargreaves, E. R.: Poliomyelitis: Effect of Exertion During the Pre-Paralytic Stage, Brit. M. J. **2**: 1021 (Dec. 11) 1948.

[10] Horstmann, D. M.: Acute Poliomyelitis: Relation of Physical Activity at the Time of Onset to the Course of the Disease, J. A. M. A. **142**: 236 (Jan. 28) 1950.

SHOULDER-HAND SYNDROME FOLLOWING MYOCARDIAL INFARCTION

TREATMENT BY PROCAINE BLOCK OF THE STELLATE GANGLION

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Reflex dystrophy of the upper extremity, often producing serious disability, has been receiving increased attention in recent years. Although the syndrome is due to many different causes, the underlying neurovascular mechanism is probably the same. This paper is concerned with a description of a technic for procaine block of the stellate ganglion using the anterior approach and the results obtained in treatment of the shoulder-hand syndrome following myocardial infarction.

Many cardiologists and other clinicians from Osler[1] on have noted the onset of a painful disability of the shoulder or hand or both following myocardial infarction or long-standing angina pectoris. Libman[2] noted the frequent coexistence of painful shoulder and angina pectoris, but he erroneously attributed the pain to "subacromial bursitis." Ernstene and Kinell,[3] in a study of 133 cases of myocardial infarction, found the occurrence of persistent shoulder pain in 17, and in six of these there was involvement of the hand. In 1943, Johnson[4] published a study of trophic hand changes in 39 of 178 consecutive cases of myocardial infarction, for which he suggested the name "post-infarctional sclerodactylia." In 34 of these cases there was also shoulder pain and disability.

The signs and symptoms of the postmyocardial infarction type of the shoulder-hand syndrome are not specific and resemble those of sympathetic disturbances

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due to other causes. Steinbrocker and associates[5] list the causes of reflex dystrophy of the upper extremity as observed in 42 cases, in the following order of frequency: (1) idiopathic, (2) postmyocardial infarction, (3) post-traumatic, (4) posthemiplegic, (5) postherpetic, (6) diffuse vasculitis, (7) cervical osteoarthritis, (8) panniculitis and (9) gonorrheal arthritis. The mechanism is considered to be one of reflex neurovascular dystrophy, in which the vasomotor and trophic symptoms presumably result from reflex stimulation of the sympathetic nerve supply. Steinbrocker, Spitzer and Friedman[5] state:

> The afferent stimuli may be assumed to arise in a general way from a focus of physiologic irritation or from a local, injured area in the extremity, the heart, the cortex, etc.—any site of external or internal disturbance or violence to tissue. . . . Following a myocardial infarction for example, afferent stimuli traverse the cardiac nerves to enter the cord at levels T_1-T_4. These new and profound stimuli strongly activate the internuncial pool in that area of the cord. The disturbance spreads upward with effects on the anterior horn cells, causing disability of the shoulder muscles. It travels downward to involve the sympathetic neurones of the lateral horn cells innervating the upper extremity.

The clinical course of this syndrome is divided into three stages, which may vary widely in individual cases in duration and symptomatology. The first stage is characterized by painful shoulder disability and stiffness, swelling and pain of the fingers and hand. This usually lasts three to six months. The second stage, which has about the same duration, is characterized by disappearance of the shoulder pain and swelling of the hand. However, stiffness and flexion deformity of the fingers increase, and there may be atrophy of hand muscles and subcutaneous tissues. Roentgenograms reveal osteoporosis of the hand bones. The third stage may continue for months or lead to irreversible changes. Trophic changes in the hand are prominent, and contractures and subluxations may occur. Blood flow in the extremity is diminished, and skin temperature drops.

Treatment of this type of disability in the past consisted primarily of physical therapy, which gave temporary palliation but had little effect on the progress of the disease. High voltage roentgen therapy has been reported as relieving the pain but otherwise not influencing the disability. Interruption of the sympathetic nerve pathways has been reported to give by far the best results. We have used local block therapy by infiltrating the stellate ganglion with procaine hydrochloride (U. S. P.) by the anterior approach, a procedure which has the advantage of necessitating no hospitalization. The sympathetic pathways can be permanently interrupted by surgery if benefit from blocks is not sustained.

It has been shown that in the early stages of the shoulder-hand syndrome there is elevated surface temperature and increased blood flow. Why sympathetic block should be more successful under these conditions than in the later stages is not clear at present, although its success in the later stages, when lowered temperature and trophic changes are present, is easy to understand. This form of therapy breaks up the "vicious circle" which is set up through the internuncial pool of active stimuli in the cord, provoked by the primary etiological condition, and in the majority of cases relieves the pain, muscle spasm and disability.

METHODS AND TECHNIC

The method of stellate procaine block used is one developed and used by one of us (J. M. M.) over the past six years. It has been used in treatment of various sympathetic and vascular disturbances such as causalgia, frostbite, thrombophlebitis, Raynaud's disease and cerebrovascular accident. These blocks were generally carried out as office and clinic procedures. However, it is advisable that one have on hand oxygen that can be administered with a B. L. B. mask and bag or some similar apparatus, in order that the patient may be kept on continuous artificial respiration for a period of one hour in case some of the procaine finds its way into the spinal canal.

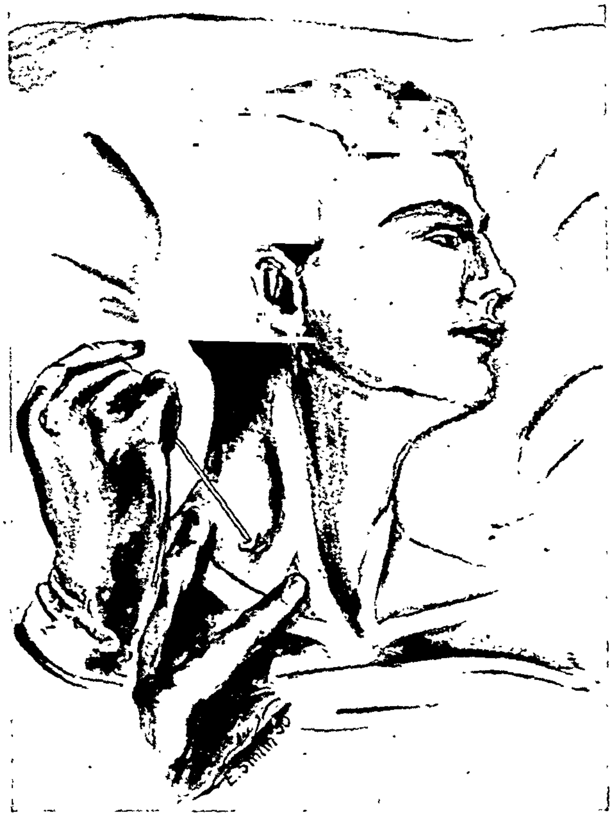

Fig. 1.—General direction in which the needle is inserted through the scalenus anticus muscle in order to strike the transverse processes of the lower cervical vertebrae.

The head is turned away from the side to be treated and is hyperextended. A procaine wheal is raised 1 fingerbreadth above the clavicle over the center of the scalenus anticus

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1. Osler, W.: Lectures on Angina Pectoris and Allied States, New York, D. Appleton & Company, 1897, p. 50.
2. Libman, E.: General Considerations, in Symposium on Angina Pectoris, with Special Reference to Coronary Artery Disease, Bull. New York Acad. Med. **11**: 427-441, 1935.
3. Ernstene, A. C., and Kinell, J.: Pain in Shoulder as Sequel to Myocardial Infarction, Arch. Int. Med. **66**: 800-806 (Oct.) 1940.
4. Johnson, A. C.: Disabling Changes in Hands Resembling Sclerodactylia Following Myocardial Infarction, Ann. Int. Med. **19**: 433-456 (Sept.) 1943.
5. Steinbrocker, D.; Spitzer, N., and Friedman, H. H.: Shoulder-Hand Syndrome in Reflex Dystrophy of Upper Extremity, Ann. Int. Med. **29**: 22-52 (July) 1948.

muscle just lateral to the clavicular portion of the sternocleidomastoid muscle. The index and middle fingers of the left hand are placed one on each side of the scalenus anticus muscle (fig. 1). A 24 gage 2 inch (5 cm.) needle is placed on a 20 cc. Luer-Lok syringe containing 15 cc. of 1 per cent procaine hydrochloride solution. This needle is then inserted through the wheal and is pointed in a direction inward and downward so as to aim in the general direction of the transverse processes of the lower cervical vertebrae or the neck of the first rib. This needle is inserted until it strikes bone at a depth of approximately 5 cm. During insertion of this needle, a continuous injection of procaine is made in order to produce a painless tract along which the second needle can be passed without discomfort to the patient. A regular 19 gage, 3½ inch (9 cm.) spinal needle is passed in the same general direction until it strikes bone at approximately 5 cm. from the skin level. The needle is passed directly through the scalenus anticus muscle between the index and the middle finger, which still straddle this muscle (fig. 2). The needle is directed inward, backward and caudad until it strikes bone. The stylet is then withdrawn, and a few moments is spent observing the needle for evidence of leakage of spinal fluid. If the needle is inserted too far, it is possible that it might pass through one of the intervertebral foramens into the spinal canal, or occasionally there may be an extension of the dura along the spinal nerve roots into which the tip of the needle may be inserted. The needle should then be rotated 180 degrees, and one should again wait for evidence of spinal fluid. If none is found or if there is no blood, the needle should then be rotated to its original position and an empty syringe attached and aspiration made. If no blood or spinal fluid is obtained, then one should inject 10 cc. of a 1 per cent procaine hydrochloride solution slowly.

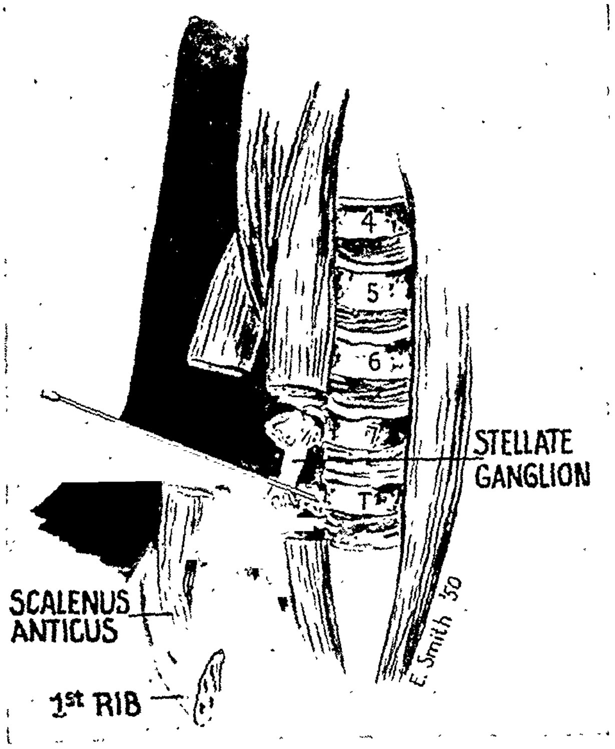

Fig. 2.—Relationship of the stellate ganglion to the transverse process of the cervical vertebrae, the neck of the first rib and the scalenus anticus muscle.

The principle of this technic is based on the fact that the sympathetic chain which contains the stellate ganglion is closely attached to the prevertebral fascia. This fascia, in turn, lies only a very short distance in front of the vertebral bodies and transverse processes. The injected procaine flows up and down behind the prevertebral fascia and is bound to strike that ganglion, since it has no other place it can go (fig. 3).

The patient should be carefully observed for a 15 minute period for any evidence of leakage of procaine into the spinal canal. After this injection, Horner's syndrome develops—i. e. the pupil constricts, the eyeball recedes into the head, the upper lid droops and there is absence of sweating on the right side of the face and head. The hand and arm on the treated side also become considerably warmer than the opposite extremity.

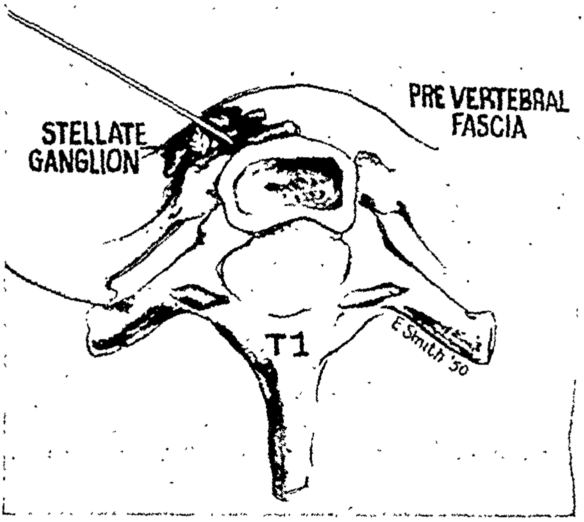

Fig. 3.—Relationship of the stellate ganglion to the prevertebral muscles and prevertebral fascia and the manner in which the procaine solution spreads forward to the prevertebral facia, to which the stellate ganglion is closely attached.

RESULTS

Within 10 minutes after injection of the stellate ganglion with procaine, there was complete relief of pain in the shoulder and arm and also in one case there was relief of a pain in the precordial region which the patient had complained of constantly. More striking, even, than the relief of pain was the remarkable return of function in the muscles of the extremity. Prior to treatment, these patients were unable to use the involved extremity. The muscles were in a chronic state of spasm. This spasm was so severe that it was very difficult for the patient to raise the arm, move the elbow or open and close the hand. The spasm was different from that which is observed in muscles in other conditions, in that the patient could move the muscles but with a great deal of difficulty, like the stretching of some inert semielastic plastic substance. After the procaine block of the stellate ganglion, each patient was able to open and close the hand with facility and also move the arm at the shoulder and elbow. One of these patients had been unable to raise his hand off the bed for three months. Ten minutes after the first procaine block, he was able to move the hand and arm with a remarkable degree of facility, and after the third injection he was able to return to his work, which involved the handling of precision instruments, a task that he had not been able to do for nearly a year.

Another patient was more impressed with the relief of stiffness of the hands than with the relief of pain.

Whenever he tried to open and close his hand, it appeared as if there was a pronounced stiffness in the joints of the fingers. On closer observation, it was determined that his stiffness was due to an inability of the muscles to relax. After the first treatment the patient was able to open and close the hand in a normal manner.

REPORT OF CASES

CASE 1.—Mrs. J. T., a 56 year old housewife, in March 1948 had an episode of severe chest pain and dyspnea, after which she was hospitalized for five weeks. Soon after discharge, she began to notice pain and stiffness in the left hand, arm and shoulder and also sharp pain radiating across the left upper part of the chest and to the left scapula and neck, not related to exertion. When she was seen in November 1948, these symptoms were persistent and marked. On examination there was pain on motion and limitation of flexion of the fingers of the left hand. The deep reflexes were equal and active. An electrocardiogram was consistent with coronary artery disease with old anterior myocardial infarction. She received three left stellate ganglion blocks over a period of one month, each of which was followed by Horner's syndrome, increased warmth, increased mobility and relief of pain in the left hand and shoulder. There was also relief of the chest pain. The swelling of the fingers receded. At the time of this writing (January 1950), almost two years later, there is continued relief from pain and markedly improved mobility of the shoulder and flexibility of the fingers. An excerpt from a letter in reply to a follow-up note reads as follows: "Dec. 29, 1949. I am grateful to you for your interest in my case and for the relief from pain that your treatments have brought me. Since the last one, on Jan. 4, 1949, the pain in the left shoulder gradually decreased until June. I was able to move my arm around to my back. Now I have complete freedom of action of my arm without pain. The swelling of the left hand went down very soon after treatment, and the redness and pain in the knuckles have greatly diminished. My right hand also benefited. A year ago both hands were painful and stiff, but now I can close them with a minimum of pain."

CASE 2.—H. C., a 63 year old retired Navy petty officer, in July 1948 had an attack of prolonged substernal pain and dyspnea while building a house. An electrocardiogram was consistent with a recent coronary thrombosis with anterior myocardial infarction. He was kept in bed for four weeks. Eight weeks after the attack he began to notice pain and disability in the right shoulder and hand. On examination there were limitation of abduction and pain on motion of the right shoulder, the patient being unable to put on a coat without assistance. There was limitation of both flexion and extension of the fingers of the right hand but no swelling or color changes. There were no reflex changes. These symptoms and signs persisted, and in December 1948 he received three right stellate ganglion blocks at weekly intervals. After these, there were definite relief of pain and increased mobility in the right shoulder and fingers, although he continued to complain of occasional mild aching and stiffness of the fingers until his death, from recurrent coronary thrombosis, in November 1949.

CASE 3.—J. A. P., a 61 year old factory worker, was hospitalized on April 12, 1948, because of prolonged substernal pain. There was a preceding eight year history of exertional angina pectoris relieved by glyceryl trinitrate. An electrocardiogram was interpreted as indicating a coronary thrombosis with recent anterior myocardial infarction. His course was uneventful for three weeks, when he noted the onset of pain and stiffness in the right wrist and shoulder. This was followed by pain, erythema and swelling of the fingers and dorsum of the right hand; the pain was severe and required narcotics for control. The swelling and pain gradually subsided but on discharge on June 1, the patient had marked limitation of abduction of the shoulder and of flexion of the fingers. He returned to work in October but was unable to perform his previous duties because of right shoulder and hand disability. In December he noted the onset of painful disability of the left shoulder and left hand. He was hospitalized again, in January 1949, because of recurrent substernal pain. An electrocardiogram suggested an old anterior myocardial infarction. Examination revealed painful limitation of motion of both shoulders, the patient being unable to raise either arm more than 30 degrees while recumbent. There was limitation of flexion of the fingers of both hands. Roentgenograms revealed deossification about the right shoulder girdle, most marked in the head of the humerus, and about the articular surfaces of the carpals, metacarpals and phalanges of the right hand. He received four stellate ganglion blocks on the left and one on the right and was discharged with increased mobility and relief of pain in both hands and shoulders. He returned to work in June 1949 and at that time was able to raise both arms vertically over his head and to clench his fists satisfactorily.

SUMMARY AND CONCLUSIONS

1. The shoulder-hand syndrome occurs in approximately 10 to 20 per cent of cases of myocardial infarction. The degree of disability reported has been variable: in some cases it has been described as minor; in other cases it has been extremely severe, leading to serious incapacity and inability of the patient to perform useful work.

2. Formerly, treatment recommended for this condition included physical therapy, roentgen treatments, ganglionectomy and periarterial sympathectomy. A sufficient number of cases of procaine block of the stellate ganglion have been reported in the literature to indicate the beneficial results of this treatment.

3. In this paper we have reported the results of treatment of a series of patients with shoulder-hand syndrome by stellate block with procaine hydrochloride by the anterior approach. This method is considered to be fairly simple and is consistently successful when employed with a reasonable amount of skill. The results have been excellent in every case.

The Need for Malaria Control.—Malaria still ranks high in the list of man's afflictions and it remains a crippling reality to vast numbers of people in warmer lands. As we become more and more involved in such areas, through military and "Point Four" activities, we may expect the importance of overseas malaria to become clearer. We shall also have to be watchful against imported malaria and its possible spread in the United States for many years to come. There was very little spread in this country of the malaria contracted overseas in World War II because we were so well prepared to prevent it. But one should not assume, as too many do, that DDT has solved all the problems, and that it is illogical for scientists to pay more attention to this disease, needless for sanitary engineers to have further concern over adjusting the environment to prevent anopheline breeding, and wasteful for administrators to budget funds for malaria studies. Paul F. Russell, M.D., Malaria and Society, *Journal of the National Malaria Society*, March 1951.

IMPORTANCE OF BRONCHIAL INVOLVEMENT IN PRIMARY TUBERCULOSIS OF CHILDHOOD

Herman I. Laff, M.D., Allan Hurst, M.D.
and
Arthur Robinson, M.D., Denver

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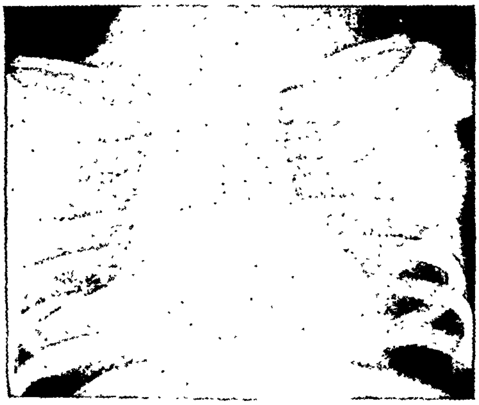

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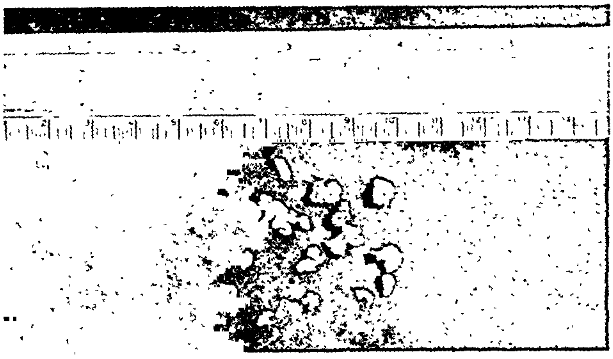
As suggested by a study of the cases presented, it is well to recognize that the consolidations of primary tuberculosis are commonly of two types: (1) benign-asymptomatic and self-limited, the more frequent variety, and (2) malignant, complicated by progressive tuberculous pneumonitis, not infrequently fatal. The roentgen patterns of both varieties may be indistinguishable, and indeed there is good evidence that both conditions may have the same pathogenesis.



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Oppenheimer[4] has shown that the majority of instances of tuberculous "pneumonitis" in the younger age group are the result of aspiration into the bronchi of caseous material. In most cases such material contains few viable organisms and many dead ones, and there results a resolving type of absorption atelectasis and pneumonitis (type 1). Rich claims that whether rupture of a caseous lymph node into a bronchus will cause progressively fatal disease or the so-called benign type depends on the concentration of live tubercle bacilli in the caseous material as well as on host resistance. He has been able to duplicate both these types of tuberculous disease experimentally in animals.

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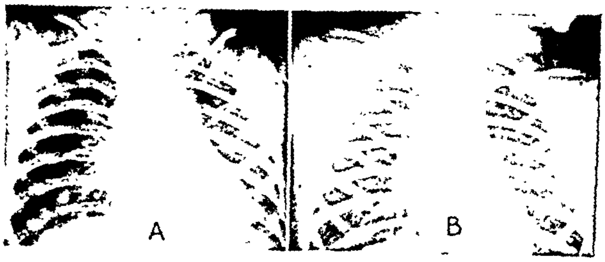

Fig. 3 (case 1).—*A*, distinct obstructive emphysema of the left lung within six weeks; *B*, normal aeration after aspiration of caseous material.

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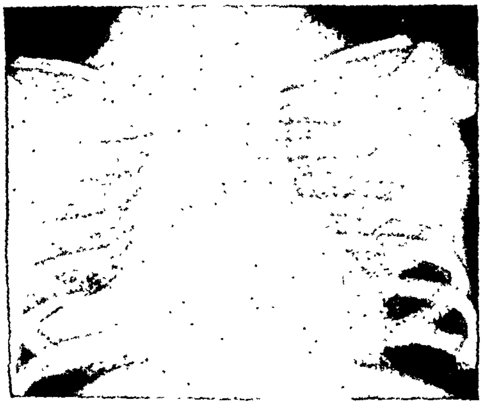

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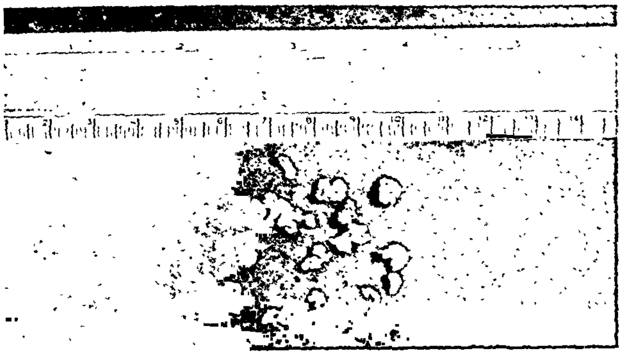

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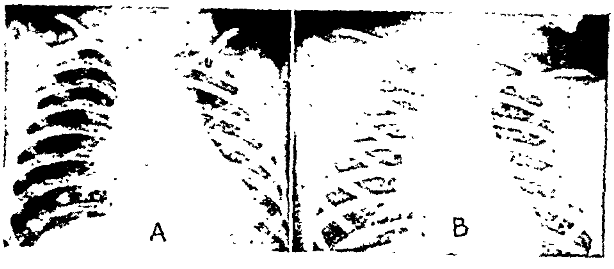

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is caused by pressure from enlarged nodes, contiguous invasion of the bronchial wall with true development of endobronchial disease or by actual plugging of stem, lobar or segmental bronchi with caseous material, a valvular mechanism is developed that leads to obstructive emphysema or obstructive atelectasis, reflecting variations in the degree of bronchial obstruction.

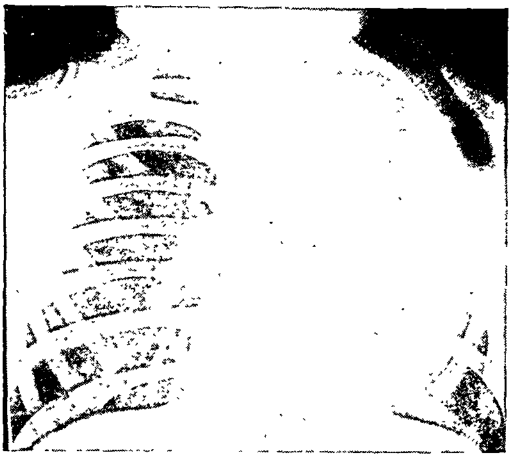

Fig. 4 (case 3).—Extensive density involving the left upper lobe.

The clinical importance of these observations is great. In spite of Rich's contention that the condition is more than an atelectasis carrying with it a varying amount of pneumonitis, the results of bronchoscopic aspiration with rapid clearing in many cases would tend to throw considerable weight in the direction of obstruction.

As to the clinical findings, all observers are agreed that they are not in proportion to the roentgen pattern. While the child may have been initially slightly ill, the temperature is usually normal or low grade. The cough may occasionally be spasmodic and resembles that of pertussis. Wheezing may be intermittent or constant, but on physical examination its location is usually constant. Again it must be stressed that "all is not asthma that wheezes." One important symptom is the rattling or whistling of the lungs during expiration. Unless treatment is instituted this picture may persist for months or even years, thus paving the way for irreversible change and the elements of chronicity.

There appears to be a difference of opinion as to how much of this condition may be due to extrinsic pressure on the bronchi or due to extension into and rupture through the bronchial wall. It is our feeling that all stages, from one extreme to the other, frequently occur, and that actual bronchial rupture is much commoner than we have hitherto been led to suspect.

Myerson,[1] reporting on a series of 29 tuberculous children treated with the bronchoscope, found bronchial rupture in only one and evidence of bronchial compression, by enlarged nodes, in seven. Our own series consisted of 15 cases of primary tuberculosis with either wheezing or persistent atypical x-ray shadows. These have been treated during the past 18 months, and we aspirated caseous material from seven, 47 per cent of the total group studied. While the actual point of rupture could not always be visualized at the first bronchoscopic examination, it could usually be demonstrated at subsequent examinations, and there could be little doubt that this was the source of the aspirated caseous material. It is our feeling that repeated examinations with the bronchoscope will ultimately demonstrate rupture in an increasingly greater percentage of cases studied.

Görgényi-Göttche and Kassay [5] were able to demonstrate bronchial rupture in 18 out of 28 patients given bronchoscopic treatment. They were able to substantiate by tomography that most infections in their patients were due to intramural bronchial obstruction rather than stenosis by external pressure. As confirmatory evidence they found bronchial rupture in eight of 17 consecutive autopsies on tuberculous children. Only one half of these were so located that they could have been seen on bronchoscopic examination. This is obviously significant, since a negative examination does not exclude the possibility that rupture has occurred into the smaller bronchi. Similarly, Rich has observed many instances at autopsies of healed bronchial perforations in adult persons dying of nontuberculous cause. His feeling is that these lesions would be found with much greater frequency if special search were made for them.

Recently Richards [6] reported that an atelectatic process developed in 21 per cent of 239 children under 6 years of age with primary tuberculosis. Over 6 years of age the percentage was less. On bronchoscopic examination the commonest cause he could find was the narrowing of the bronchi due to extrinsic pressure. In a series of 28 cases of active primary tuberculosis associated with radiographic abnormalities in the lung field Hutchinson [7] found that only two patients had no bronchoscopic evidence of obstruction. Of the 26 patients with positive bronchoscopic findings only nine showed solely extrinsic pressure on the bronchus by enlarged lymph nodes.

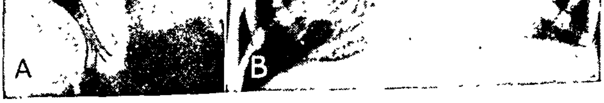

Fig. 5 (case 3).—*A*, tomogram showing the left main bronchus with the upper lobe branch ending in a blind pouch; *B*, distinct clearing on the left after several bronchoscopic examinations.

Jones, Rafferty and Willis [3b] examined 42 children with benign parenchymal tuberculosis. In only 11 did the bronchial tree seem normal. Aspiration, cauterization and biopsy resulted in the clearing of the process in more than one half of the patients. They actually found atelectasis in more than 12 per cent of children with primary tuberculosis.

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[6] Richards, W. F.: Bronchial Obstruction in Primary Pulmonary Tuberculosis, Proc. Roy. Soc. Med. 37:589, 1943-1944.

[7] Hutchinson, J. H.: Bronchoscopic Studies in Primary Tuberculosis in Childhood, Quart. J. Med. 18:21, 1949.

Encroachment on the bronchi by enlarged lymph nodes can be considered the forerunner to rupture. Careful inspection may sometimes reveal the caseous contents shimmering through the thinned mucous membranes. The process has been likened to the coalescence of tuberculous nodes in the neck with the adjacent skin ultimately being necrotic as a manifestation of nature's effort to be rid of the caseous contents. In the bronchi there may be multiple points of rupture, not necessarily discerned simultaneously. The rupture may be pinpoint in size or quite large. In the latter condition, where large caseous masses may be extruded, fatal impaction in the trachea and larynx may result in asphyxia. One such case was reported recently.[8]

When the caseous material is extruded in small pieces it is usually removed by coughing. Frequently masses of such material become lodged in bronchi and if not expelled will produce obstructive emphysema, atelectasis and ultimately bronchiectasis with supervening infection in the segment or lobe plugged. Granulations and tuberculomas may be found adjacent to the site of rupture. These, of course, add to the obstructive phenomena and should be removed.

The picture of bronchial invasion in childhood tuberculosis differs from that in adults. When the caseous portion of the node is expelled healing takes place with a minimum of scarring and very little narrowing of the bronchus. In adults the ulcerogranulomatous masses of tuberculous tissue tend ultimately to surround the entire circumference of the lumen of the bronchus involved, and when healing occurs the resulting fibrosis produces distinct and permanent stenosis. Fortunately, streptomycin has been found to hasten resolution and lessen the stenotic tendency if adequately administered.[9] In our own experience with rupture of tuberculous nodes in children streptomycin is of little benefit in accelerating healing or terminating the process. This may be because it exerts a favorable effect only on the inflammatory tissue adjacent to the point of perforation.

At bronchoscopic examination the effect of bronchial compression will be evidenced by widening of the carina, narrowing and distortion of the bronchial lumens and widening of the spurs between the bronchial orifices. Since compression precedes rupture, the former is more commonly present. For proper detection and evaluation of narrowed bronchi in infants it is our contention that bronchoscopic inspection is best made under general anesthesia. The uncontrollable motions of the bronchial wall that result from coughing and squeezing will otherwise be very difficult and confusing for accurate interpretation. Those who advocate bronchoscopic treatment in infants and children without anesthesia are usually associated with large bronchoscopic clinics. They have the advantages of teamwork and well trained personnel, which admittedly may compensate for the deficiences of examination without anesthesia. However, we have seen no deleterious aftereffect from administration of ether anesthesia to these children. There was no clinical or x-ray evidence of spread after bronchoscopic treatment and only occasional minor rise in temperature. Appreciable subglottic edema has not occurred, as we have been very careful to use small bronchoscopic tubes.

We have also preferred the proximally lighted bronchoscope to the Jackson type instrument mainly because of the superior over-all view permitted by the former. Study of relationships is very important for adequate diagnostic impressions, and the over-all view allowed by this instrument is appreciated in the small bronchi of infants. It should be noted that strong suction may hasten rupture and emptying of the nodes. We have observed this sequence with persistent use of suction in bronchi that were first seen narrowed by extrinsic pressure and later yielded caseous material. There has been relatively little bleeding after aspiration of the necrotic masses, and it has not seemed a hazardous procedure.

Permanent atelectasis with or without bronchiectasis [3c] has been demonstrated in several series of cases studied. The "middle lobe syndrome" [10] has been amply proved as related to healed primary tuberculous infection in the majority of cases. Broncholiths,[3d] the calcified masses of healed tuberculous lymph nodes, with the constant attendance of hemoptysis are but another proof of the importance of the healed primary infection and its complications. Obstructive emphysema of varying extent may be just as significant a lung-destroying process as severe pulmonary suppuration.

Regarding its value in treatment, it is our feeling that repeated treatment with the bronchoscope may prevent or mitigate such late complications. While it is true that many children seem to get well without therapy, the incidence of late complications has not been adequately checked. In any case, where there is even slight evidence of segmental, lobar or massive lung involvement bronchoscopic treatment should be done as a diagnostic procedure. The pattern may be that of atelectasis or emphysema and may vary from one extreme to the other in the same patient. Neither x-ray nor clinical evidence can differentiate extrinsic pressure from perforation of the bronchial wall. Should caseous material be found it should be aspirated, and such aspiration should be repeated at frequent intervals. Removal of material improves the airway and prevents passage into smaller bronchi, hence treatment with the bronchoscope becomes an important therapeutic procedure in such cases. Streptomycin and paraaminosalicylic acid (PAS) should be given, since evidence in adults indicates that it relieves edema and that it may effect the course of childhood tuberculosis favorably. When simple extrinsic pressure of nodes is found treatment should be expectant, and bronchoscopic treatment must be repeated at intervals, watching for rupture and aspiration should it be necessary.

SUMMARY

1. Bronchial involvement in the pathogenesis of parenchymal consolidation and in the course of primary tuberculosis in children is an important and frequently overlooked factor.

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[8] Barbosa, A. G., and Silveira, D. F.: Caseous Tracheo Bronchial Adenopathy with Rupture into Trachea: Death Due to Asphyxia Case in Infant, Rev. med. e cir. de São Paulo 7:337, 1947.

[9] Brewer, L. A., III, and Bogen, E.: Streptomycin in Tuberculous Tracheobronchitis, Am. Rev. Tuberc. 56:408, 1947.

[10] Brock, R. C.: Post Tuberculous Broncho-Stenosis and Bronchiectasis of the Middle Lobe: Pathology of Tuberculous Lymphadenitis in the Lungs and Mediastinum, Thorax 5:8, 1950.

2. Not only should bronchoscopic treatment be done in patients presenting evidence of wheezing, atelectasis or obstructive emphysema but in every patient with childhood primary pulmonary tuberculosis whose progress is not considered satisfactory.

3. The relative ease and safety of bronchoscopic examination in such patients is stressed, as well as some of the complications found in later life that might be averted.

ABSTRACT OF DISCUSSION

DR. MERVIN C. MYERSON, Beverly Hills, Calif.: The paper that was read is not exactly the same as the paper that was submitted to me. Dr. Laff and his associates stressed the fact that there are many more foreign articles than American articles. I think it is fair to say that the American physicians are more considerate of their children as patients, and, after all, treatment with the bronchoscope and the laryngoscope are not playtime activities for these youngsters. Despite the fact that Dr. Laff and his associates have not had difficulty with ether anesthetic, it is my opinion that it is not without danger. These children are entitled to an anesthetic. As long as thiopental sodium (pentothal® sodium) is available we should use it. Thiopental sodium can be used if as a child is being anesthetized the larynx is under laryngoscopy; then the bronchoscope can be readily passed. There is no difficulty whatsoever. The lesions that have been mentioned seemed to have been based on the impression gotten from an article written by Rich in which he states that all bronchial lesions encountered during bronchoscopic treatment are due to glands that either compress the bronchus or penetrate it. The word "rupture" to designate a pin point opening into the bronchial gland is unsatisfactory. I would rather use the word "penetration." Among children one encounters three types of lesions. A great preponderance comes under the heading of involved glands. These lymph nodes occur in three places: below the carina, or inter-bronchial angle, and at the right and left tracheobronchial angles. Another effect of prolonged compression from glands is malacia, a softening of the bronchial wall so that the cartilaginous rings are absorbed, and when bronchoscopy is done a horizontal slit is seen. This is especially noted on the left side. The other two types are pulmonary lesions and endobronchial lesions. These are always secondary to parenchymal lesions. Dr. Laff mentions the postmortem changes in these cases. I would warn that postmortem changes in the tracheobronchial tree in tuberculosis are never indicative of the true condition before death. If one treats a patient bronchoscopically 24 hours before he dies and later looks at the autopsy specimens he is astonished at the extent of pathological change that occurred during those 24 hours. There is a tendency on the part of bronchoscopists to use the word "edema." I want to ask Dr. Laff what he means when he speaks of "edema." There are two types of edema: edema of passive congestion, pressure on the venous return flow, and edema due to the inflammatory process. In the long-standing tuberculous lesions one does not get edema unless there is an acute pressure or an acute inflammatory process.

DR. PAUL C. SAMSON, Oakland, Calif.: Dr. Laff and Dr. Myerson have suggested that bronchial complications frequently develop during a primary tuberculous infection in childhood and are often overlooked. I am in complete accord with these observations. One has but to study the additional reports of Jones, Rafferty and Willis, and Kent to gain further insight into the problem. It is of great importance to recognize the essential pathological condition of so-called "epituberculosis" and to realize that in most instances the primary disturbance is bronchial rather than pulmonary. If this concept is accepted it becomes obvious that bronchoscopic treatment is a necessary procedure both from the diagnostic standpoint and from the therapeutic standpoint. It should be emphasized that signs, symptoms and roentgen findings frequently cannot be correlated, that investigation of all three aspects is necessary, and that any suspicion of impaired bronchial function warrants bronchoscopic exploration. The type of bronchial obstruction observed is of considerable interest. Those with greatest experience report a preponderance of patients in whom the bronchial obstruction is due to caseous debris from ruptured peribronchial lymph nodes. Granuloulcerative lesions identical with those seen in adult tuberculous tracheobronchitis have been observed, however. In the latter group particularly I believe there is every justification for short-time but intensive antimicrobial therapy. The value of early and, perhaps, repeated bronchoscopic aspirations is emphasized by a number of observations to the effect that under these conditions the pulmonary lesions clear much more promptly. This should give the child a chance for a speedier recovery and reduce the chances of the development of: (1) progressive tuberculous pneumonitis, which is not infrequently fatal, and (2) irreversible bronchopulmonary change. In regard to the latter hazard, it is interesting to speculate on the possibility of future nontuberculous disability. Bronchial stenosis certainly develops on occasion, as does permanent bronchiectasis. Kent proved the presence of bronchiectasis in seven of a total of 10 children whom he examined but noted that infected, i. e., symptomatic, bronchiectasis did not develop during a short period of observation. It is a known fact, however, that symptoms develop in many of these children sooner or later. In retrospect, it is probable that a goodly number of patients with the so-called "middle lobe syndrome" can blame their difficulties on an early epituberculosis with bronchial obstruction. In my experience with 25 patients with isolated right middle lobe obstructive pneumonitis, approximately 25 per cent showed concomitant bronchial obstruction and peribronchial calcified lymph nodes. There is the small but appreciable group of patients whose symptoms are due to broncholiths. This group recently has been investigated by both Head and Schmidt. These patients would seem to be suffering from a nontuberculous complication of an earlier acid-fast infection. In children, suggestive clinical and/or roentgen signs of impaired bronchial function should make early and frequent bronchoscopic examinations mandatory to the end that (1) an unquestioned diagnosis be established; (2) early restoration of a normal parenchyma and bronchus be made more certain, and (3) the later nontuberculous complications of bronchial stenosis, bronchiectasis and broncholiths be minimized.

DR. W. L. HOWARD, Detroit: I would like to refer to a series of 59 cases of epituberculosis in children hospitalized at the William H. Maybury Sanatorium (Detroit Municipal Tuberculosis Sanitorium), Northville, Mich., in which bronchoscopic examination was done. Seventy-four per cent of these cases showed abnormal findings, the variety of which is shown by the following list: bulging of the bronchial wall from extrinsic pressure, tuberculoma, endobronchial ulceration, mucosal swelling, rupture of caseous node through the bronchial wall. We felt also that thick secretions must also be listed as a factor in the bronchial obstruction in very small children. We feel that treatment with the bronchoscope can be done in all but very small babies and recommend that it be used routinely. Review of 32 of these children nine years after their hospital treatment showed evidence of bronchiectasis in 70 per cent. The question whether to use streptomycin in treating these patients is important. Our observations show that, although the effect of streptomycin on the enlarged nodes is very slight, there is a good improvement in the resolution rate in the parenchymal portion of the lesion, and we feel that the use of streptomycin may be expected to reduce materially the incidence of bronchiectasis in these cases. In addition, it was noted that although the tendency to spread is very great no spreads were observed in the treated children. We are not yet certain that streptomycin will actually prevent the development of bronchiectasis but hope that a further period of observation will show this to be true.

DR. HERMAN I. LAFF, Denver: My enthusiasm for this subject stems from the fact that I diagnosed my first case only 18 months ago, although I have been doing a good many bronchoscopic examinations on tuberculous patients during the past 20 years. I have found evidences of nodes invading and perforating the bronchi of tuberculous adults not infrequently. The predominance of this type in children, however, has always been stressed in the literature. I am willing to attribute my own failure to have previously encountered such a case in a child in part to faulty bronchoscopic interpretation. It has been intriguing to my colleagues and myself, after my first experience, that in such a short period we have been able to diagnose 15 cases and in eight of these to have found caseous masses containing tubercle bacilli penetrating a bronchus. Dr. Myerson mentioned the greater reluctance of bronchoscopists in the United States to subject children to bronchoscopic examinations. That may be so, but I feel that a child manifesting signs of possible foreign-body aspiration, such as wheezing—as some tuberculous children do—or x-ray evidence of atelectasis or emphysema is entitled to treatment both from diagnostic and therapeutic standpoints. Regarding the question of thiopental sodium anesthesia, anesthetists with whom I associate feel it is contraindicated in children. In our hands ether has proved to be a safe anesthetic in these cases. I agree regarding the preponderance of bronchial ulcerations found at postmortem as compared with those seen bronchoscopically during life. This is particularly true of the adult type. We, fortunately, have had no fatalities in our children to permit comparison. As to the question of other types of edema not directly associated with tuberculous invasion that may be found in bronchi of tuberculous individuals, I, too, have seen these in adults having received artificial pneumothorax, etc. However, since these children had not had collapse therapy this question did not arise. A child's bronchus that has been encroached on by tuberculous nodes presents the picture of a lumen that has been narrowed by external compression. When the nodes have penetrated the bronchial wall the caseating material and the adjacent ulcerogranulomatous masses are unmistakable.

HYPERTROPHIC OSTEOARTHROPATHY IN CARCINOMA OF THE LUNG

John D. Pattison Jr., M.D., Toledo, O., Erwin Beck, M.D.
and
William B. Miller, M.D., Pittsburgh

Hypertrophic pulmonary osteoarthropathy, or hypertrophic osteoarthropathy, received its name from Pierre Marie in 1890, but was first described by Eugen Bamberger in 1889. As defined by Marie in 1890, it is a "symmetrical osteitis of the four limbs, chiefly localized to the phalanges and terminal epiphyses of the long bones of the forearm and leg, sometimes extending to the roots of the limb and flat bones, and accompanied by a dorsal kyphosis and some affection of the joints." This definition clearly differentiates hypertrophic osteoarthropathy from simple clubbing of the fingers and toes. Clubbing is a proliferative change of the soft tissues about the terminal phalanges with no constant osseous changes. It is believed by some [1] to be the early stage of hypertrophic osteoarthropathy.

Hypertrophic osteoarthropathy, with rare exception,[2] is secondary to an acute or chronic affection of the viscera. It is occasionally associated with conditions outside of the thoracic or abdominal cavities. It has been reported following subtotal thyroidectomy,[3] in carcinoma of the nasopharynx,[4] in carcinoma of the thymus,[5] in benign tumors of the chest wall including fibromas and lipomas [6] and in myelogenous leukemia.[7] The visceral lesion is usually pulmonary, comprising bronchiectasis, abscess, empyema, tuberculosis, pneumonia,[8] or neoplasm, but may be cardiac, hepatic, or gastrointestinal, such as congenital heart disease with cyanosis, subacute bacterial endocarditis, biliary cirrhosis,[9] colitis,[10] rectal strictures, chronic pyloric obstruction, and sprue.[7]

It is the purpose of this paper to emphasize the occurrence of hypertrophic osteoarthropathy in neoplastic disease of the chest, particularly bronchogenic carcinoma, in which it may produce the earliest symptoms, which are numerous. They most commonly consist of aching pains and tenderness in the joints and along the shafts of the long bones, transient increase in joint fluid usually not associated with local inflammatory signs, muscular weakness, edema and hypertrophy of the subcutaneous tissues of the extremities, burning sensations and increased sweating of the hands and feet, gynecomastia, and other evidence of endocrine imbalance. Because of the similarity of most of the above symptoms to those of rheumatic disease, many cases of bronchogenic carcinoma have been treated for many months as rheumatoid arthritis before a chest x-ray revealed the underlying pathology. The one important feature of this condition in its relation to pulmonary neoplasm is that it usually precedes the pulmonary symptoms by a period of time sufficient to allow successful surgical removal of the malignant lesion. This is in rather marked contrast with chronic suppurative conditions of the chest in which the diagnosis is made long before the appearance of hypertrophic osteoarthropathy. In the past, this condition has been associated more commonly with suppurative than with neoplastic disease of the chest. It is important for us to appreciate its not infrequent occurrence in carcinoma of the lung as a clue to earlier diagnosis.

Brooks [11] reviewed 57 cases of hypertrophic osteoarthropathy reported up to 1913; of these, six had primary pulmonary neoplasm, seven had malignant mediastinal tumors and one had no known primary lesion. In 1915 Locke,[9] in his review of 139 previously reported cases and five of his own, found bony changes associated

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with pulmonary or mediastinal malignancy in nine, one having had symptoms of hypertrophic osteoarthropathy for five years before a primary lung neoplasm was found. Craig[12] reported four cases of bronchogenic carcinoma with emphasis on the fact that in each case the earliest symptoms were due to hypertrophic osteoarthropathy; three had been diagnosed as rheumatoid arthritis and one was diagnosed as acromegaly. In all four cases, bone symptoms preceded the pulmonary symptoms from eight to 11 months. In a recently reported case[13] of adenocarcinoma of the lung, clubbing and bone symptoms appeared one and one-half years before chest symptoms. A feature of this case was gynecomastia, which was also present in one of our cases and one of Fried's.[14] Duncan,[15] Ayre[16] and Poppe[17] have all stressed the significance of clubbed fingers, and especially of osteoarthropathy, as a valuable early sign in pulmonary neoplasm.

In the widely varied diseases that have been found to produce hypertrophic osteoarthropathy, no common denominator is evident as a basis for its pathogenesis. The similarity to acromegaly has long been noted, and, because of the spadelike enlargement of the hands and feet, this is a frequent early misdiagnosis. Fried[14] described four cases of bronchogenic carcinoma with severe osteoarthropathy, which strongly suggested pituitary dysfunction as an important contributing factor; at necropsy, three had definite hyperplasia of the eosinophilic cells of the anterior lobe of the pituitary. In our second case, there were acromegalic changes, but careful histological examination of the pituitary showed only a miniature basophilic adenoma.

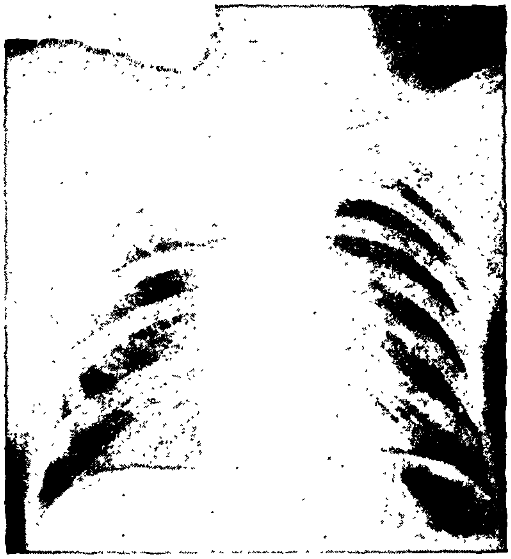

Fig. 1 (case 1).—Homogeneous density in right upper lobe proved by aspiration biopsy to be caused by bronchogenic carcinoma, which could not be classified.

Mauer's[18] speculations as to the pathogenesis of clubbing and secondary osteoarthropathy, based upon actually observed phenomena, suggest many possible contributing factors. In all of the diseases that may cause secondary soft tissue and bony changes, there is usually an elevated erythrocyte sedimentation rate, which results from an increased blood fibrinogen and globulin content and leads to increased rouleaux formation, reduced surface area of the erythrocytes, and impaired oxygen release to the tissues. Charr and Swenson[19] have demonstrated by infrared photographs of living persons and post-mortem arteriograms that the local vascular bed is increased and widened in cases of clubbing. This means that there is an increased peripheral blood flow. The increased peripheral blood flow plus the reluctance of the erythrocytes to release their oxygen leads to arteriolar anoxia, low-tissue oxygen tension, and clubbing.

The gross pathology of bones in hypertrophic osteoarthropathy consists of irregular, porous, rough accumulations of newly formed periosteal bone, which is usually thickest in the region of the peripheral epiphysis and is more pronounced at the lines and points of musculotendinous insertions. Microscopically, the periosteum may be thickened and may contain increased accumulations of lymphocytes and round cells. There may also be small hemorrhagic areas and areas of edema and vasodilatation not unlike those seen in local osteophyte formation. The cortex of the old bone becomes eroded, and occasionally bone metastases from malignant pulmonary neoplasms will be seen in the bones affected by hypertrophic osteoarthropathy. The marrow of both the newformed periosteal bone and of the old bone is richer and more vascular in the areas of active periosteal proliferation and fattier in the inactive areas. The synovial membranes may present fibroid degeneration, subsynovial congestion and collections of lymphocytes and leukocytes with eventual proliferation of granulation tissue and pannus formation. Pannus pressure may cause degeneration of the cartilage.[10]

Although the soft tissue and bony changes that constitute this clinical entity are usually so marked and show such definite pathological changes, they are reversible and will disappear entirely if the primary condition is cured.[20] The symptoms and objective findings may improve or disappear with dramatic speed once the primary lesion has been treated (cases 5 and 6), surgically or by x-ray therapy.[21]

REPORT OF CASES

Case 1.—L. L. E., a white man aged 52, first noted pain and swelling of his hands and feet eight months before hospital admission. His knees, hips, shoulders, elbows, wrists, and fingers soon became similarly involved, and three months before admission his breasts became hard and painful. His feet and hands became progressively larger, and he lost 25 lb. (11 kg.) in weight in spite of a good appetite. There were no significant symptoms referable to his chest. On admission his fingers and toes were clubbed; the feet, ankles, knees, fingers, hands, and wrists were swollen, enlarged, warm, and painful to touch. All joint movements were painful. A tentative diagnosis of acromegaly was suggested.

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The blood cell count, the results of the serologic study, and the blood calcium, phosphorus, and alkaline phosphatase were normal. The sedimentation rate was very rapid and the basal metabolic rate was plus 23%. A chest film showed a homogenous density in the upper third of the right lung field (fig. 1), and x-rays of the extremities showed subperiosteal new bone formation in the metacarpals, phalanges, femora, tibiae, and fibulae; several joints showed irregularity and demineralization suggesting rheumatoid arthritis; the sella turcica appeared normal. Biopsy of an axillary node was noncontributory, but an aspiration biopsy of the right lung (done at the Veterans Administration Hospital, Bronx, N. Y.) showed carcinoma, which could not be classified. Roentgen therapy gave temporary palliation, but later chest roentgenograms showed progression of the lung lesion with rib destruction. The patient died 10 mo. after admission.

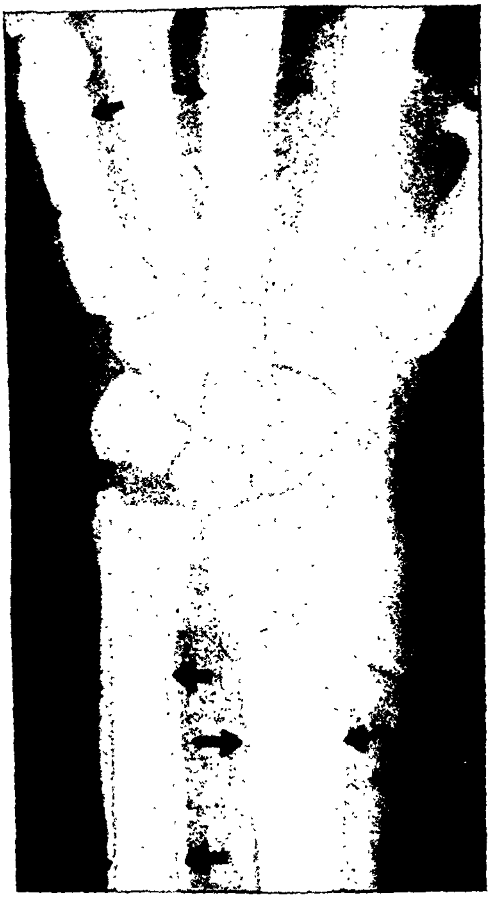

Fig. 2 (case 2).—Reactive periositis (hypertrophic osteoarthropathy) of the radius, ulna, and metacarpals in bronchogenic carcinoma.

Comment.—Symptoms of hypertrophic osteoarthropathy and clubbing appeared eight months before a primary lung carcinoma was found. There was a rapid sedimentation rate and gynecomastia, the latter suggesting endocrine dysfunction.

Case 2.—L. J. D., a white man, aged 52, was sent to the hospital on April 18, 1947, with a diagnosis of multiple acute arthritis. The pain and swelling of his ankles and wrists, of three months' duration, had failed to respond to therapy. There were *no symptoms referable to his chest and all other symptoms* were noncontributory except for some weight loss. His hands, fingers, and toes were tender and had increased in size, requiring him to have his wedding ring enlarged from a size 10 to a size 13. There was no clubbing of the fingers and his joints were not painful on movement. Later increased joint fluid developed in both knees. His entire hospital course was febrile with temperatures ranging from 99 to 103 F. Roentgenograms of the extremities showed marked, serrated, irregular, reactive periostitis of the femora, tibiae, fibulae, ulnae, radii, metacarpals (fig. 2), and the lateral portion of both clavicles; the distal phalanges were *normal*.

A chest x-ray (fig. 3) showed increased, beaded, linear markings extending upward from the left hilus to the apex, suggesting an old tuberculous process. The sella turcica was slightly enlarged in its anteroposterior diameter (15 mm.), but was otherwise normal. An admission blood cell count, serologic study, and blood calcium, phosphorus, and alkaline phosphatase were all normal. The sedimentation rate was 32 mm. in an hour.

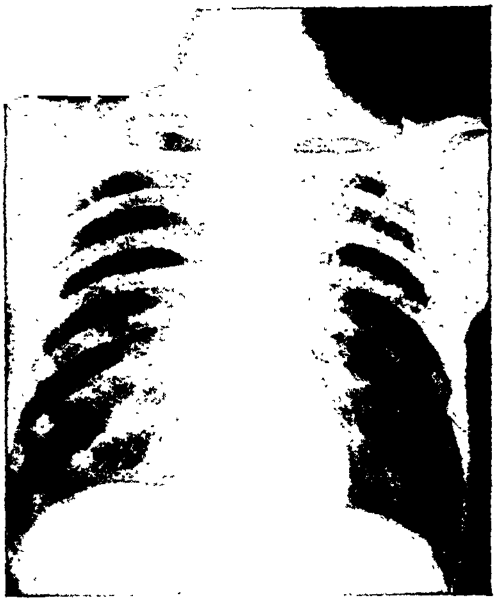

Fig. 3 (case 2).—Bronchogenic carcinoma (grade III) in left upper lobe, the roentgenologic appearance of which suggests tuberculosis rather than neoplasm.

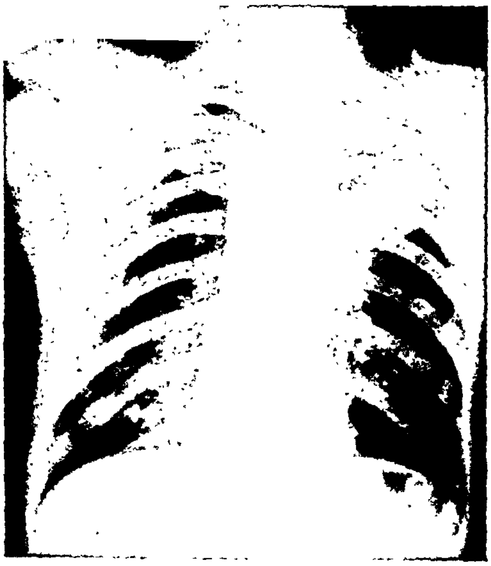

Fig. 4 (case 3).—Bronchogenic carcinoma, left upper lobe.

Four weeks after admission, three nodes were noted in the left supraclavicular area and a biopsy of these nodes showed metastatic squamous cell carcinoma, grade III. His general condition rapidly became worse, and he died about five weeks after admission.

Necropsy.—The upper lobe of the left lung and its pleural surface were studded with tumor nodules. The nodes extending from the left main bronchus to the homolateral cervical region were enlarged and filled with tumor cells. A secondary branch of the left upper lobe bronchus contained an infiltrating tumor mass 1 cm. in diameter. Retroperitoneal nodes were also found to contain tumor cells. Histologic diagnosis was bronchogenic carcinoma, grade III. A section from the tibia showed the typical pathological appearance of hypertrophic osteoarthropathy. The pituitary was normal in size but contained a miniature basophilic adenoma, probably of no clinical significance.

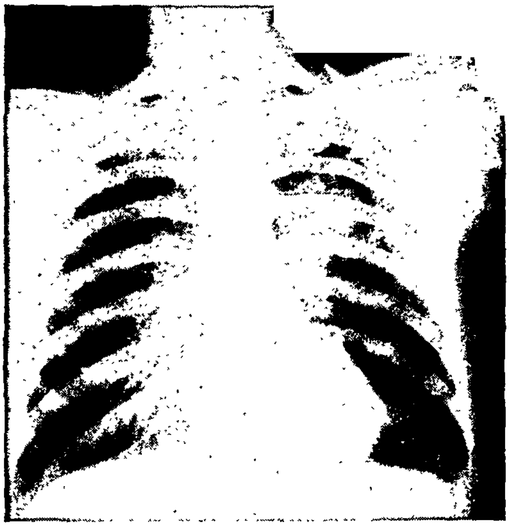

Fig. 5 (case 4).—Bronchogenic adenocarcinoma, left upper lobe.

Comment.—Symptoms of hypertrophic osteoarthropathy preceded the chest symptoms by three months, and the provisional diagnosis was multiple arthritis. The patient had spadelike enlargement of the hands, suggesting acromegaly, and an elevated sedimentation rate. The original chest x-ray was not diagnostic of carcinoma; clubbing of the fingers was not present; the pituitary was not significantly abnormal.

Case 3.—J. P. A., a white man aged 51, had had a questionably productive cough for three years but was otherwise well until three months before admission, when he began to have swelling and pain in both legs and ankles. Eight weeks before admission he developed blurred vision, severe frontal headaches, and disturbed sensorium. He became slightly confused and his speech thickened at times. He was admitted to the Veterans Administration Hospital, Aspinwall, Pa., with a diagnosis of left frontal lobe tumor.

On admission he had bilateral papilledema with retinal hemorrhages, disturbed sensorium, and abnormal physical findings in the apex of the left lung. There was marked clubbing of the fingers and toes and tenderness to pressure over the distal ends of the tibiae. Blood cell count and blood chemistry values including calcium were normal. The sedimentation rate was 23 mm. in one hour. Bronchoscopy failed to visualize a lesion after a roentgenogram of the chest (fig. 4) had shown an area of increased density extending from the left hilus to the left lateral chest wall and suggestive of atelectasis. X-rays of the extremities showed faint, periosteal new bone formation involving the tibiae, fibulae and radii. A diagnosis of bronchogenic carcinoma with cerebral metastasis and hypertrophic osteoarthropathy was made. His condition deteriorated rapidly and he died one and a half months after admission.

Necropsy.—The clinical diagnosis was confirmed, and, in addition, metastatic lesions were found in the pleura, pericardium, kidneys, and regional lymph nodes.

Comment.—This case showed marked clubbing, but minimal periosteal reaction or proliferation. As in the previous cases, symptoms of hypertrophic osteoarthropathy preceded significant pulmonary symptoms.

Case 4.—F. B., a white coal miner, aged 58, was hospitalized because of dyspnea of many years duration, which had become worse in the previous three months, swelling and aching of ankles, hands, and elbows of three months' duration, and precordial pain radiating down the left arm, of five years' duration. Other complaints on admission were a chronic cough for years without hemoptysis, but with occasional mucopurulent sputum, and a 15 lb. (6.8 kg.) weight loss in the previous two weeks. Physical examination on admission was essentially noncontributory except for the extremities, which showed clubbing of the fingers and toes, moderate bone tenderness and swelling of the hands, elbows, feet and ankles. A chest x-ray (fig. 5) showed a well-demarcated area of increased density at the level of the second left interspace anteriorly measuring 5.5 cm. in diameter. X-rays of the extremities showed periosteal proliferation along the radii, ulnae, tibiae and fibulae. Blood cell count and blood chemistry, including content of sugar, nonprotein nitrogen, cholesterol and uric acid, were normal. The sedimentation rate was slightly elevated—23 mm. per hour. Tests on sputum were negative for tubercle bacillus. The interpretation of an electrocardiogram was consistent with an anterior myocardial infarct. Bronchial secretions were negative by the Papanicolaou method, but an aspiration biopsy was positive for undifferentiated carcinoma. High-voltage roentgen therapy was instituted because it was felt that the patient was inoperable. Death ensued three months after admission.

Necropsy.—The autopsy revealed bronchogenic adenocarcinoma of the left lung with metastatic lesions in the adrenals and the pleura.

Comment.—The symptoms of hypertrophic osteoarthropathy present in this case were somewhat overshadowed by other complaints; nevertheless, they occurred comparatively early in the course of the disease.

Case 5.—R. R. S., a white man, aged 48, was admitted to the hospital because of swelling and aching of his knees, ankles, elbows, and wrists, of eight weeks' duration, associated with loss of appetite, weight, and strength. A local doctor diagnosed his condition as arthritis. Weakness and pain in the extremities progressed to the point where he was forced to quit his job. He had profuse night sweats shortly before admission. His only respiratory symptom was a chronic "cigarette cough." A chest x-ray 20 mo. prior to admission was negative. On physical examination he appeared chronically ill; his knees seemed slightly thickened; his ankles showed moderate nonpitting edema; and

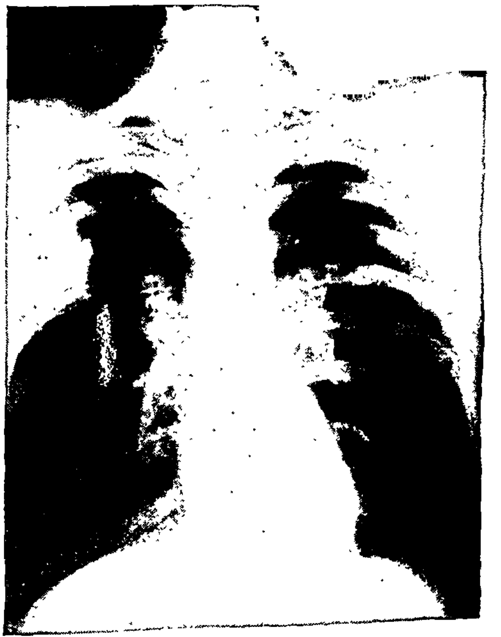

Fig. 6 (case 5).—Peripheral adenocarcinoma of the right upper lobe.

bone tenderness was present in the distal portions of the tibiae. The initial clinical diagnosis was rheumatoid arthritis.

X-rays of the extremties showed periosteal reaction of the distal ends of the femora, tibiae, and fibulae. A chest x-ray (fig. 6) showed a well circumscribed, peripheral, homogeneous density 5.5 cm. in diameter at the level of the third right anterior rib. There was a moderate anemia; the sedimentation rate was moderately elevated—28 mm. per hour; blood sugar and nonprotein nitrogen were normal; the serologic study was negative. Clubbing of the fingers and toes was noted. Bronchoscopy revealed no abnormality, and bronchial secretions showed no malignant cells. Right pneumonectomy was performed, showing no evidence of metastatic involvement in the thorax. Within 24 hr. after the operation, pain and tenderness of the legs had already subsided. Death on the fourth postoperative day was attributed to shock and pulmonary edema.

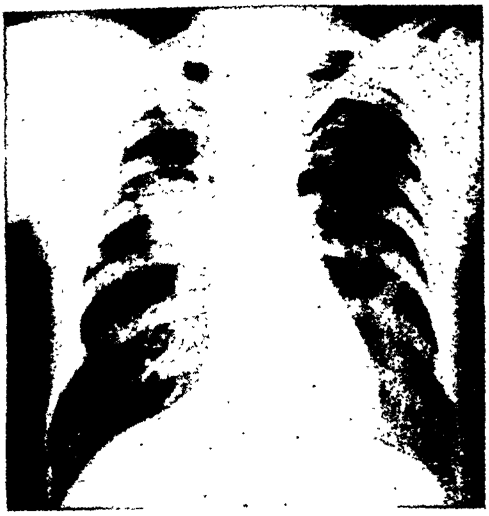

Fig. 7 (case 6).—Bronchogenic adenocarcinoma at the base of the right upper lobe anteriorly, discovered on routine chest x-ray.

Microscopic examination revealed a peripheral adenocarcinoma of the right upper lobe.

Comment.—This case shows the occurrence of the symptoms of hypertrophic osteoarthropathy at least two months before a pulmonary neoplasm was found. These symptoms responded dramatically to the removal of the primary lesion. Another interesting note in this case is that this man was refused hospitalization two months previous to his admission because it was felt that he had rheumatoid arthritis and that hospitalization was not urgent.

Case 6.[21]—F. W. O., a white man, aged 60, sought medical attention because of pain and swelling of his legs. The pain and swelling were first noted about two months before he went to his family doctor, and they gradually became worse. A complete systemic review was noncontributory except for some slight exertional dyspnea, which had existed for many months. His past medical history consisted of the usual childhood diseases and a bleeding peptic ulcer 14 years previously. Positive physical findings were confined to the extremities. On both forearms there were multiple, small, soft, freely moveable subcutaneous nodules, not unlike lipomas. Both feet and ankles were swollen, the skin seemed slightly thickened, and there was a three plus edema of both legs. The knees later became swollen and ached constantly. The peripheral vessels were moderately sclerosed.

A routine chest roentgenogram (fig. 7) revealed a well-circumscribed, homogeneous density occupying the base of the right upper lobe anteriorly. Because of this chest finding, he was hospitalized for diagnostic study and observation. The original blood cell count showed a moderate anemia. Urinalysis and results of serologic examination were noncontributory. The total protein value was 5.9 gm. per 100 cc. with an albumin value of 3.94 and a globulin value of 1.96. Gastrointestinal study showed a deformed duodenal cap, and x-rays of his extremities showed minimal osteoarthritic changes in the ankle, minimal calcification of the large vessels of his legs, and periosteal reaction of the tibiae, fibulae, and femora. Bronchoscopy showed an edematous, granular orifice to the right upper lobe bronchus, but biopsy and Papanicolaou study of bronchial secretions were negative.

During the two-week period of preoperative study there was no essential change in the patient's complaints, physical findings, or the pulmonary lesion. A right pneumonectomy was performed and the pathological diagnosis was adenocarcinoma of the lung. At the time of surgery no evidence of metastasis could be found. Approximately 15 hr. after surgery, all subjective symptoms with reference to his extremities had disappeared, the edema was much less, and bone tenderness was no longer present.

Comment.—This was another case of bronchogenic carcinoma, in which the symptoms of hypertrophic osteoarthropathy preceded any evidence of chest pathology by more than two months and led to the correct diagnosis.

SUMMARY

Six cases of bronchogenic carcinoma with associated hypertrophic osteoarthropathy are reported. In five of them the symptoms of hypertrophic osteoarthropathy were the first significant symptoms, constituting a valuable early diagnostic finding in carcinoma of the lung.

Some aspects of the pathogenesis of hypertrophic osteoarthropathy are reviewed.

The occurrence of hypertrophic osteoarthropathy in neoplastic disease of the lungs is emphasized.

ADDENDUM

Since acceptance of this paper for publication, two additional cases have been observed. The first patient was admitted for "active, multiple rheumatoid arthritis" of six months' duration, with no chest symptoms. Routine chest roentgenogram showed three well-defined, right lower pulmonary densities. Histological proof of primary or secondary neoplasm was lacking, and autopsy was not permitted. Advanced hypertrophic osteoarthropathy was present.

In the second case, no significant symptoms related to the hypertrophic osteoarthropathy were present, chest symptoms being predominant. Histological proof of pulmonary neoplasm was still lacking at the time of pneumonectomy for adenocarcinoma, grade III, although hypertrophic osteoarthropathy had been demonstrated roentgenographically five weeks previously.

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[21] This was Dr. Monroe Cronstine's patient (Toledo, Ohio) and was seen in consultation by one of us (J D.P.).

A Single Case Report by Opie.—Of the numerous ways in which pathological studies have contributed to the understanding of disease, an important one is found in the suggestions for the direction of experimental work that have derived from studies of human material. An illustration is the impetus of clinical investigation that came from a single case report by Opie. This report described hyalinization of the islands of Langerhans in a patient dying of diabetes mellitus and suggested an etiologic relation. Although it soon became apparent that the lesion is not constantly present in diabetic patients, the paper focused attention on the role of the islands of Langerhans in diabetes and pointed the way to further investigations that have greatly increased the available knowledge of the physiology and therapy of the disease. O. T. Bailey, M.D., Fifty Years of Medical Progress: Medicine as a Science: Pathology, *New England Journal of Medicine*, March 29, 1951.

HYPERVITAMINOSIS A

REPORT OF A CASE IN AN ADULT

Marion B. Sulzberger, M.D.
and
M. Paul Lazar, M.D., New York

The paucity of published reports of hypervitaminosis A indicates the relatively low incidence of this syndrome. However, the increasing number of publications about the symptom complex since Josephs'[1] article in 1944 suggests that many cases of clinical hypervitaminosis A may have been overlooked in the past. Prompted by new findings, leading medical journals on each side of the Atlantic Ocean recently have had editorials on the subject.[2]

In addition to Josephs' description, Toomey and Morissette,[3] Rothman and Leon,[4] Fried and Grand,[5] Dickey and Bradley,[6] Wyatt, Carabello and Fletcher[7] and Caffey[8] have presented additional material concerning the now well established syndrome of hypervitaminosis A in man. Furthermore, experiments on laboratory animals given large doses of vitamin A have not only helped to delineate the clinical signs but, of greater importance, have provided material for the study of physiological, chemical and histological changes induced by overdosage with this generally comparatively innocuous substance.[9]

As far as we have been able to ascertain, at the time of this publication all the cases presented (eight reported in full and casual reference to eight others) have occurred in young children. Our patient was an adult whose physiological, chemical and general body economy would obviously differ from that of a child or infant. As described below, despite this distinct age differential, the general syndrome in our patient was basically similar to that previously reported in infants and children.

REPORT OF CASE

Mrs. N. R., a 44 year old white woman,[10] was first seen by us on May 25, 1950. While she consulted us chiefly because of excessive loss of hair, it developed that during the preceding six months the patient had been experiencing various difficulties, which included the following: (1) For five months prior to our seeing the patient, her menstrual cycle, though regular, was three days shorter than previously. The flow lasted five days instead of eight and was less than usual. A thorough examination by her gynecologist revealed no abnormalities. (2) Generalized joint and bone pains, migratory in nature, were first present in March 1950. These were treated by thiamine and penicillin injections with equivocal results. The severity of the pains fluctuated a great deal so that at times they would disappear spontaneously; though the discomfort was great, at no time was it necessary for ordinary household duties to be put aside. (3) Examinations performed because of the pains led to the discovery and extraction of two infected teeth. These extractions, performed in March 1950, did not check the joint and bone pains. (4) Soreness and fissuring appeared in January 1950 at the corners of the mouth and the nasal apertures. These also were treated with a series of thiamine injections; there was no apparent improvement. (5) Skin changes which dominated the complaints included generalized pruritus, a dry, rough skin with a widespread branny desquamation and excessive loss of hair beginning in the last two months with thinning of scalp hair and loss of the eyebrows, eyelashes, axillary and pubic hairs and lanugo hairs. (6) She experienced night sweats during the last six months. (7) According to the patient, her eyes were more prominent than they had been previously.

Family History.—The patient's family history was noncontributory. There was no history of skin disease, abnormalities of hair or nails, atopy or other familial disease.

Personal History.—At age 6, the patient had an "eczema" between her fingers. In 1941 an amputation of the cervix was done, and in 1947 the patient had virus pneumonia. Otherwise, the patient has always been a generally healthy person.

Physical Examination.—Abnormal findings included tenderness over various long bones, the spine and the large joints which could be elicited by deep pressure. A slight bilateral exophthalmos was observed which the patient stated had been present for several months; but one must view this observation as being of doubtful significance, for we had not seen the patient prior to the onset of the syndrome. All the other abnormal findings were limited to the skin and its appendages.

The skin was generally warm and dry. The hairs of the scalp, axillary and pubic areas were coarse, brittle, dry and easily pulled from their moorings. Those comprising the eyebrows and eyelashes were almost entirely gone, and no lanugo hairs could be found anywhere on the body. The scalp hair present was difficult to manage and appeared unkempt. A chloasma-like or Riehl's melanosis-like pigmentation was present on each side of the face and neck. A pruritic, excoriated, superficial and finely scaling dermatosis was present over the upper back and all the extremities. Distinct, elevated, minute follicular papules and follicular hyperkeratoses were evident on the extremities and, in particular, on the thighs and lateral surfaces of the arms. Slight scaliness and superficial fissuring were present at the nasal apertures and corners of the mouth. Papular acneform and milia-like lesions were present on the face, particularly on the forehead. The finger nails were soft and brittle, and onychorrhexis was present.

Further questioning at this time revealed that the patient had been taking about 600,000 units of vitamin A daily during the 18 month period prior to our seeing her. This self medication was inspired by a radio "nutrition commentator" who suggested that vitamin A was good for "alleviating dry throats and as a prophylactic for colds." Our patient grasped this cue and, in her zeal, established a daily 600,000 unit dose (supplemented by doses of 1,000,000 units to 2,000,000 units on special occasions, e. g.,

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From the Department of Dermatology and Syphilology of New York University Post-Graduate Medical School (Dr. Sulzberger, Chairman) and the Skin and Cancer Unit of University Hospital of the New York University-Bellevue Medical Center.

[1] Josephs, H. W.: Hypervitaminosis A and Carotenemia, Am. J. Dis. Child. **67**: 33 (Jan.) 1944.

[2] Hypervitaminosis A, editorial, J. A. M. A. **143**: 1417 (Aug. 19) 1950. Vitamin A and the Skeleton, editorial, Brit. M. J. **2**: 565 (Sept. 2) 1950.

[3] Toomey, J. A., and Morissette, R. A.: Hypervitaminosis A, Am. J. Dis. Child. **73**: 473 (April) 1947.

[4] Rothman, P. E., and Leon, E. E.: Hypervitaminosis A: Report of 2 Cases in Infants, Radiology **51**: 368 (Sept.) 1948

[5] Fried, C. T., and Grand, M. J. H.: Hypervitaminosis A, Am. J. Dis. Child. **79**: 475 (March) 1950.

[6] Dickey, L. B., and Bradley, E. J.: Hypervitaminosis A: Case Report, Stanford M. Bull. **6**: 345 (May) 1948.

[7] Wyatt, T. C.; Carabello, C. A., and Fletcher, M. E.: Hypervitaminosis A: Report of a Case, J. A. M. A. **144**: 304 (Sept. 23) 1950.

[8] Caffey, J.: Poisoning Due to Excess Vitamin A.: Its Relation to Infantile (Cortical) Hyperostosis, Am. J. Dis. Child. **79**: 404 (Feb.) 1950.

[9] (*a*) Maddock, C. L.; Wolbach, S. B., and Maddock, S.: Hypervitaminosis A in the Dog, J. Nutrition **39**: 117 (Sept.) 1949. (*b*) Maddock, C. L.; Wolbach, S. B., and Jensen, D.: Hypoprothrombinemia with Hemorrhage as a Cause of Death in the Rat in Hypervitaminosis A, Federation Proc. **7**:275 (March) 1948. (*c*) Fell, H. B., and Mellanby, E.: Effects of Hypervitaminosis A on Foetal Mouse Bones Cultivated in Vitro, Brit. M. J. **2**: 535 (Sept. 2) 1950. (*d*) Moore, T., and Wang, Y. L.: Hypervitaminosis A, Biochem. J. **39**: 222, 1945.

[10] Dr. Jacob Cohen of Brooklyn referred the patient to us.

suspicion of oncoming colds or dry throat). The vitamin preparation employed was supplied in 50,000 unit capsules by a large local pharmacy and contained no vitamin D. The patient's husband somehow began to suspect that this vitamin might be harmful, and the medication was stopped voluntarily on May 20, 1950, five days before we saw the patient for the first time.

Several urinalyses gave results which were normal in every respect, including that for calcium excretion. Basal metabolic rates determined on two occasions one week before we saw the patient were + 7 and 0; two determined six years ago were — 9 and — 4. Roentgenograms of several long bones and joints were made June 1, 1950 and showed only normal features. Those areas tender on deep pressure were selected for radiography. A scout film of the abdomen revealed no abnormalities such as renal calculi or metastatic calcification.

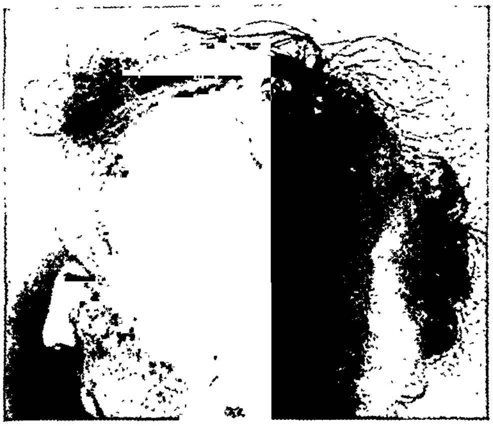

Fig. 1.—Photograph taken June 1, 1950. Note sparseness of scalp hair and unkempt appearance. The scalp may be seen easily through the hair. (Vitamin A self medication started about Dec. 1, 1948 and stopped on May 20, 1950.)

Therapy and Course.—The only therapy advised was that of continued avoidance of the supplementary vitamin A intake, the patient having ceased to take the vitamin five days before seeing us. Those foods containing large amounts of vitamin A were restricted as much as possible. Though vowing to cooperate, the patient was reluctant to believe that anything as beneficial as a vitamin could actually have caused such difficulties.

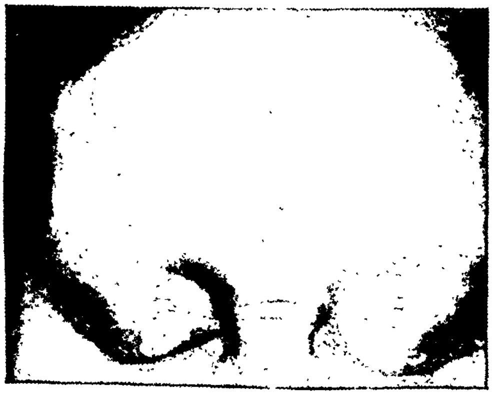

Fig. 2.—Photograph taken June 1, 1950. Note loss of eyebrows and eyelashes. Small milia-like lesions may be seen just above the glabella. Chloasma-like pigmentation is apparent on the lateral aspects of the forehead.

Within 10 days after the patient stopped taking the vitamin A, the joint and bone pains disappeared, as did the pruritus and superficial branny desquamation of the skin. The patient now was convinced of the role of the vitamin in the syndrome. The follicular hyperkeratoses on the extremities and fissuring at the corners of the mouth and nose were gone several days later. Because of the rapidity of involution of these particular lesions, we unfortunately missed the opportunity of getting photographs of them. However, the following photographs, taken on June 1, 1950 (figs. 1, 2 and 3), give various views of the remainder of the syndrome, as evidenced by the pigmentary, hair and skin abnormalities seen on the head; and the photographs, taken on Sept. 26, 1950 (figs. 4, 5 and 6), show the evolution of these changes during the approximately four month abstinence from vitamin A medication.

As the latter half of June approached (four weeks after the cessation of additional vitamin A consumption), new, fine and coarse hairs began to appear in all areas where previously they had been lost. However, the finger nails continued to become worse, and it was only at the end of July (10 weeks after the vitamin A capsules had been discarded) that they began to show a tendency to revert toward normal. Though the dystrophy and recovery of the nails did lag behind that of the other epidermal appendages, when seen in September (about four months after the original visit) the patient was normal except for the shortness of the hair and the residual chloasma-like pigmentation (figs. 4, 5 and 6).

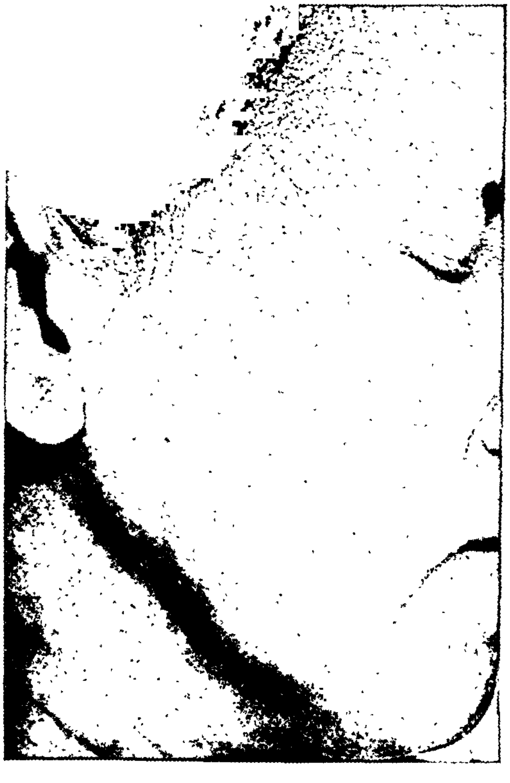

Fig. 3.—Photograph taken June 1, 1950. Chloasma-like pigmentation is easily seen, as is the lack of eyebrows, eyelashes and facial hair. Milia-like lesions are present on the cheek

The night sweats disappeared, and sweating was reported to be normal throughout the summer.

The hair gradually became more manageable, and its fall became minimal by mid July. The menstrual cycle returned to what it had been one year previously and to the normal intervals which had always existed prior to that time. Little or no change occurred in the slight exophthalmos. At no time did the patient experience difficulty with her eyesight, though she did claim that her eyelids had a "granular feeling" shortly before she came to the office.

COMMENT

Although the picture of hypervitaminosis A is not yet generally well known to clinicians, there are sufficient reports and experimental data for one to consider it a well established and characteristic syndrome. Its inclusion for the first time in standard American medical textbooks [11] will doubtless lead to a more general recognition of this symptom complex by the practitioner.

As far as we have been able to discover, up to the present all articles on the undesirable effects of excessive amounts of vitamin A have dealt with the syndrome as occurring in very young children and laboratory animals. To the best of our knowledge the present report is the first to record observations of hypervitaminosis A in the adult human being. The findings closely follow the pattern already established in children and experimental animals, but several deviations from and additions to the accepted syndrome were present in this case.

Menses.—As all the previously reported cases occurred in infants, the menstrual changes in our patient automatically introduce another and new aspect of prolonged vitamin A overdosage. One cannot rule out the possibility that the menstrual changes in our patient may have been a spontaneous or physiological alteration since the patient was in the age group of those often undergoing menopausal changes. Nevertheless, the onset of the menstrual disturbances at the time of the other disturbances and the reversion to normal menses when the vitamin A medication was stopped speak strongly in favor of the assumption that the alterations in menstruation were actually a part of the hypervitaminosis A syndrome. If this assumption is correct, then either endocrine imbalance or disturbances in bleeding or coagulation might, one or both, underlie the menstrual aberrations; the few studies done on our patient shed no light on the cause of the menstrual changes.

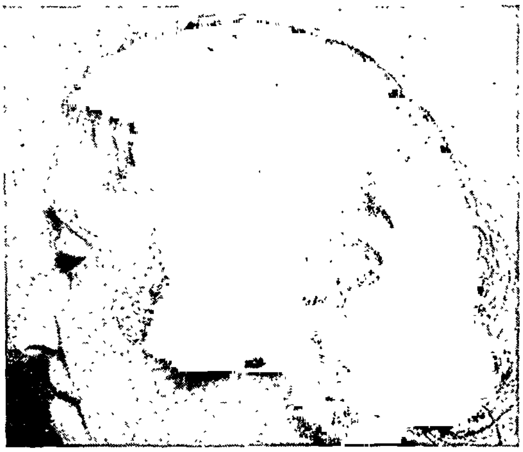

Fig. 4.—Photograph taken Sept. 26, 1950. Note regrowth and orderly appearance of the scalp hair. Short hairs extend over the upper part of the forehead. Note the return of the facial, eyelash and eyebrow hair.

In this connection it is noteworthy that in other cases of hypervitaminosis A, hypoprothrombinemia, correctable by vitamin K administration, has been shown to be the basis for hemorrhages (for example, such as that which followed tonsillectomy in Josephs' patient [1]). Severe hemorrhage and even death have occurred spontaneously and after minor trauma in animals with hypervitaminosis.[12] Therefore, in any suspected or proved case of hypervitaminosis A, caution should be exercised in regard to interferences that might cause bleeding. Even minor surgical procedures may precipitate severe hemorrhage—though this fortunately did not occur after dental extractions in our patient.

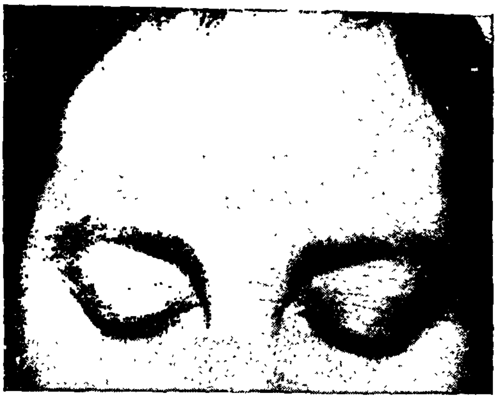

Fig. 5.—Photograph taken Sept. 26, 1950. Note excellent hair regrowth in eyebrow and eyelash areas, as well as on the face. Chloasma-like pigmentation may still be seen on the forehead. Milia-like lesions are gone.

Although the mechanism of vitamin A hypoprothrombinemia is unknown, it appears possible that the excess of vitamin A may perhaps interfere with the synthesis of vitamin K by the intestinal flora, or it may disturb absorption or increase the need for vitamin K, or it may destroy or inactivate vitamin K in the liver or elsewhere in the body.

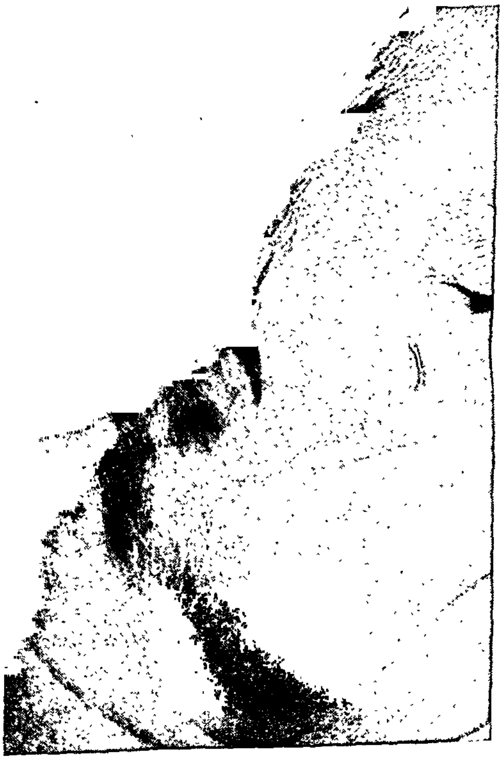

Fig. 6.—Photograph taken Sept. 26, 1950. Note extensive hair growth on the face and regrowth in the eyebrow and eyelash areas. The chloasma-like pigmentation, though lighter, is still visible. Milia-like lesions on the cheek are gone.

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[11] Anderson, W. A. D.: Pathology, St. Louis, C. V. Mosby Company, 1948. Harrison, T. R.: Principles of Internal Medicine, Philadelphia, The Blakiston Company, 1950. Nelson, W. E.: Mitchell-Nelson, Textbook of Pediatrics, ed. 5, Philadelphia, W. B. Saunders Company, 1950. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice, ed. 5, Baltimore, The Williams and Wilkins Company, 1950.

[12] (*a*) Maddock, Wolbach and Jensen.[9b] (*b*) Light, R. F.; Alscher, R. P., and Frey, C. N.: Vitamin A Toxicity and Hypoprothrombinemia, Science **100**: 225 (Sept. 8) 1944. (*c*) Rodahl, K., and Moore, T.: The Vitamin A Content and Toxicity of Bear and Seal Liver, Biochem. J. **57**: 166 (July) 1943.

The fractures observed in the animal with vitamin A toxicosis are not prevented by vitamin K which, however, corrects the ever present hypoprothrombinemia. These two manifestations may also be isolated from one another by the administration of bishydroxycoumarin (dicumarol®) which causes hemorrhage but not fractures.[13]

Pigmentation.—Not heretofore described as a component of this syndrome was the chloasma or Riehl's melanosis-like pigmentation present in our patient. Again, one could speculate about the appearance of this pigmentation being a coincidence instead of a result of the excessive vitamin A intake. Yet its concomitant appearance with the other well established signs and symptoms and its fading on withdrawal of the vitamin A (though during this three month period the patient was exposed regularly to the summer sun) lead us to incline to the opinion that this is a newly observed component of hypervitaminosis A. Our meager understanding of the basic physiological mechanisms underlying the appearance of chloasma or Riehl's melanosis makes it impossible for us to explain this phenomenon.

Skeletal System.—Apparently the mature structure of bone is not so labile as a child's in its response to outside influences. This could well explain why the roentgenologic features regularly and characteristically found in children were missing in our adult case. Wolbach and others make the following statement in connection with their extensive studies in laboratory animals: "It should be kept in mind that the results on bone of excessive vitamin A administration are exhibited only in the growing animal and only in regions undergoing growth." [9a] Moore and Wang noted the same findings and wrote: "In adult rats, the bones are probably more resistant to fractures, since we detected no breakages in our older animals." [9d]

Itching.—Generalized pruritus is another feature which has been a constant component of the syndrome. Infants and animals fed excessive doses of vitamin A have regularly shown the presence of itching. Generalized moderately severe itching was also a prominent symptom in our patient. The questions of the origin and mechanism of this pruritus are still unsolved.

Is the pruritus due to primary epidermal changes? Could the threshold be lowered locally by the faulty keratinization and dryness of the skin? This would be the simplest and, therefore, the first hypothesis for investigation. However, hypervitaminosis A produces many other complex systemic and internal changes which can lead to itching. These include alterations in the delicate balance and interplay between the liver and the nervous, cardiovascular and endocrine systems; local and general alterations in physical and chemical balance, as exemplified by the ratio of anions, cations and colloidal particles; changes in pH and surface tension, disturbances in enzyme systems—all or any of these may directly or indirectly influence both peripheral and central prurigenic irritability. All these factors must, therefore, be considered in the further study of this complex problem.

Keratin Structures.—To dermatologists and to all other students of this syndrome, extraordinary interest must attach to the changes found in the horny structures, the hair, finger nails and horny layers of the skin. In our case also, all these structures were disturbed by the inordinate consumption of vitamin A and in a manner remarkably reminiscent of hypovitaminosis A.[14] Previous reports have referred to these features in hypervitaminosis A, but no correlation has been made with normal morphologic changes in the epidermis and its appendages or with known physiological functions of the skin.

Eye Symptoms.—For the sake of completeness, it must be mentioned that exophthalmos, though in our case of questionable connection with the hypervitaminosis, has been a feature seen by several investigators in laboratory animals receiving high doses of vitamin A.[15] (Also excess vitamin A has been said to have no effect on dark adaption.[16])

Results of Blood Studies *

	May 18	May 26	June 1	June 14	Sept. 26
Red blood cells	..	..	4,200,000	..	..
White blood cells	13,000	..	7,400	..	6,500
Hemoglobin, Gm	..	..	14	..	..
Polymorphonuclear leukocytes, %	68	..	65	..	64
Lymphocytes, %	21	..	24	..	29
Monocytes, %	11	..	11	..	7
✓Total calcium †	..	..	9.2	..	..
✓Inorganic phosphate †	..	..	3.5	..	..
✓Alkaline phosphatase, Bodansky units per 100 cc	..	4.0	..	..	..
Cholesterol †	..	205	..	205	215
Cholesterol esters †	..	120 or 58%	..	..	..
✓Proteins, total, Gm./100 cc.	..	7.7	..	..	..
✓Albumin, Gm	..	5.0	..	..	..
✓Globulin, Gm	..	2.7	..	..	..
Albumin-Globulin ratio	..	1.8	..	..	..
Total carotenoids, units per 100 cc	..	62.5	..	96.0	115
Vitamin A, blue units per 100 cc.‡	..	60.0	..	60.0	30.0
Lipids, total † §	..	..	..	893	773
Fatty acids †	..	..	..	695	560
Lipid phosphorus †	..	..	..	14.2	10.0

* Dr. M. Bruger of the University Hospital of New York University-Bellevue Medical Center supervised the chemical examination of blood specimens, and Drs. Jacob Cohen and Jacob J. Reilly of Brooklyn furnished other information about the patient.

† Milligrams per 100 cc.

‡ Price-Carr method used.

§ Bloor method used.

Laboratory Studies.—As in previous investigations in infants and laboratory animals with hypervitaminosis A, few detectable changes in the blood picture were present in our patient (table). On the other hand, in contrast to some of the previous reports, Mrs. N. R. had no abnormalities in alkaline phosphatase and mineral metabolism in blood or urine studies done several days after the vitamin A ingestion was stopped. The total plasma proteins, red blood cells and hemoglobin, repeatedly re-

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13. Walker, S. E.; Eylenburg, E., and Moore, T.: The Action of Vitamin K in Hypervitaminosis A, Biochem. J. 41: 575-579, 1947.

14. Frazier, C. N., and Hu, C. K.: Cutaneous Lesions Associated with Deficiency in Vitamin A in Man, Arch. Int. Med. 48: 507 (Sept.) 1931. Loewenthal, L. J. A.: A New Cutaneous Manifestation in the Syndrome of Vitamin A Deficiency, Arch. Dermat. & Syph. 28: 700 (Nov.) 1933.

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ported as below normal in some of the children with this syndrome, were normal in this instance.

Several abnormalities were present in our patient: the white blood cells were increased in number (13,000 per cubic millimeter) on the initial study and subsequently receded to normal figures (7,400 and 6,500), which were similar to counts done on the patient over a number of years. An increment in monocytes was noted on three separate occasions, a decrease being noted on the last count.

As found by all other investigators, the vitamin A level was much higher than normal. When the supplementary vitamin A intake was stopped, within a four month period a definite recession toward accepted normal figures occurred. During the period when no supplemental vitamin A was being taken, the total carotenoids rose to a figure slightly above normal. Concomitantly, the originally elevated total lipids, lipid phosphorous and fatty acids fractions reverted toward standard figures. It may be worthy of particular note that the cholesterol levels remained within the normal range throughout.

All other blood studies and urinalyses gave normal findings in every respect. The fact that no history or no evidence of renal disease was elicited indicates the probable lack of relation between the mechanisms in our case and the interesting observation of Popper and his associates [17] who found that "hypervitaminosis A judged by plasma levels was found in disease of the nephritic type." Apparently, even in the absence of liver damage, the destruction of the kidney parenchyma either causes retention of a protective substance or decreases the production of a substance destructive for vitamin A. Therefore, feeding of excessive vitamin A produces a much higher vitamin A blood level in persons with nephritis than in normals. Whatever the mechanism, it is certain that "endogenous hypervitaminemia A" (i. e., without apparent excessive intake) does occur and must be kept in mind in the presence of isolated reports of blood abnormality.[18] The history of excessive vitamin A intake, variations in the vitamin A tolerance curve, knowledge of the patient's general physical condition and the height of the blood vitamin A levels usually permit the ready differentiation between endogenous and exogenous hypervitaminemia A. In our patient, the evidence points unequivocally to the exogenous form.

Other Features of Hypervitaminosis A.—Several aspects of hypervitaminosis A previously described in infants and children were absent in the present case. These additional components were hepatomegaly, splenomegaly, hypochromic anemia, depressed serum proteins, elevated alkaline phosphatase, clubbing of fingers and an abnormal appetite for butter and fish liver oils. It is very likely the variations in response of human beings to an overdosage of the same vitamin are dependent on such factors as the amount, the length of time and how often the medication is taken. The different physiological and biochemical demands and stresses in each person and in each age group, and even in each organ or structure within an organ, doubtless play important roles in vitamin A metabolism and in the determination of the pictures produced by excess or deficiency of intake.

Many other factors must influence the blood levels and the susceptibility of a person to be overwhelmed by vitamin A. One of these factors is the form or preparation in which the vitamin is taken or administered (in food or a supplement); some available preparations are oils, others acetates or alcohols, while still others have emulsifying agents added.[19] The status of the gastrointestinal tract, including its enzymes, flora and physical and chemical emulsifying capacity, as well as the status of the intestinal wall, and the transport system, including the ability of the chylous fluid and blood to carry the vitamin, are other factors. The status of the liver, thyroid, kidney and other internal organs and the interrelationship between them and vitamin A would also be important. Different periods of growth, bodily stress and development obviously vary the need for the vitamin. The storage areas, primarily the liver, and the ability or inability to store or release the vitamin [20] should also be considered. The form of the vitamin, whether an alcohol or not, has a great deal to do with this.[12c] The destruction, excretion and conversion of the vitamin, and the states, functions and needs of the organs of response, of the "target structures" at the time the vitamin is exhibited (for example, the state and needs of the individual hair follicle at the moment; the momentary rate and form of activity of the sebaceous glands; the quiescence or activity of bone growth) are other influencing factors.

Vitamin A Therapy.—It is not the purpose of this paper to review all the indications for vitamin A therapy. However, large doses, 100,000 to 500,000 international units daily, taken for varying or even indefinite periods of time, are being advocated for the treatment of many conditions.[21] Of significance in this regard is that the advocated therapy sometimes has little clinical or experimental justification.

In view of the present widespread use of extremely large doses of vitamin A, it is remarkable that scarcely a reference has been made to clinical signs of "toxic" hypervitaminosis A occurring in patients receiving large doses for relatively long periods of time. Fortunately, in most patients the zone between adequate prophylactic and therapeutic doses and the toxic doses appears to be very wide. Nevertheless, the present case again emphasizes that the physician administering large doses of vitamin A must be on the lookout for signs and symptoms of toxicity and should have regular blood examinations for vitamin A levels performed on all patients on high doses for periods of more than a few weeks.

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With the advent of many high potency preparations, some with added emulsifying agents (wetting agents), the possibility of overdosage with vitamin A is greater and increases the need for recognizing the syndrome of hypervitaminosis A, which until now may often have been overlooked.

Speculations on Vitamin A Toxicosis as Related to the Skin.—Nearly all references to hypervitaminosis A discuss the blood findings,[22] the apparent similarity to infantile cortical hyperostosis,[23] and the interrelation of the vitamin metabolism with the liver and hormonal glandular system of the body. One of the most striking features of our case is the manifest, undeniable and far reaching resemblance between the skin changes presented by this hypervitaminotic state and those characteristic of hypovitaminosis A.[14] Even without questioning the patient and on mere clinical inspection, experienced dermatological observers would immediately and certainly consider, first, hypovitaminosis or avitaminosis A, and, second, hypothyroidism, as the probable underlying cause of this woman's difficulty. We believe that this aspect of the syndrome of hypervitaminosis A deserves further comment.

Excellent experimental and clinical evidence reveals a definite relation between the thyroid and vitamin A. For example, the simultaneous administration of vitamin A and thyroxin prevents a rise in the basal metabolism.[24] Sadhu and Brody have demonstrated that in rats large doses of vitamin A cause a decrease in thyroid size and reduce the basal metabolic rate while allowing normal growth. It is postulated that the thyrotropic hormone is counteracted in some manner by part of the vitamin A, as is the action of the injected thyroxin on end organs and enzyme systems.[25]

Most persons with hypothyroidism have low vitamin A levels and high carotenoids. It is presumed that thyroid activity is needed for the conversion of carotene to vitamin A; thus, it has been shown that when thyriod therapy is given to raise the basal metabolic rate and lower the cholesterol level, the altered carotene and vitamin A values tend to return to normal.[26] Low serum levels of vitamin A in cretins showed little change when carotene was administered orally. Moreover, administration of desiccated thyroid stimulates and thiouracil prevents the absorption of beta carotene from the intestinal tract of rats.[27] Patients with exophthalmic goiter receiving a diet high in cod liver oil and low in fat gained weight; the basal metabolic rate was also reduced.[28] Most pertinent is the observation of Josephs, who stated, regarding hypervitaminosis A, "It may look like hypothyroidism due to an excess of thyroid antagonist not diminished thyroid gland activity. Relative failure of the thyroid may explain the persistence of high lipid levels and hypothyroid symptoms." [1]

Much about our patient fitted into the picture of hypothyroidism as evidenced in the skin and other systems. However, it is not by any means clear by just what mechanisms the skin changes of either hypovitaminosis or hypervitaminosis A are brought about nor the reason for their striking resemblances. To just what extent thyroid function plays the role of a common factor is also as yet unelucidated.

The possibility of therapy with thyroxin was considered in our patient but discarded because of conflicting reports as to its efficacy.[29] One group has even stated that the symptoms of hypervitaminosis A in laboratory animals were enhanced by administration of thyroid.[29a] Since apparent spontaneous recovery occurs from the toxic manifestations of hypervitaminosis A, no active therapy was instituted in our case. As was to be expected, the result of the cessation of the excessive vitamin A intake was a satisfactorily prompt and complete disappearance of the signs and symptoms.

SUMMARY

The observations and course of a case of hypervitaminosis A, apparently the first to be reported in an adult, are presented. Several possible features of the syndrome not observable in infants or children are described in the adult (e. g., menstrual changes, absence of radiologic changes of the bones, chloasma or Riehl's melanosis-like pigmentation). The effects and mechanisms of excessive vitamin A on various organs and systems and, in particular, on the structures of the skin are discussed. The resemblances between the changes of hypervitaminosis A, hypovitaminosis or avitaminosis A and hypothyroidism are described, and some thoughts on the possible interrelations are submitted.

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Hippocratic Oath.—The modernisation of the Hippocratic Oath by the World Medical Association, known as the Declaration of Geneva (1948), is known to very few and is worthy of note. It runs—

Now being admitted to the profession of Medicine, I solemnly pledge to consecrate my life to the service of humanity. I will give respect and gratitude to my deserving teachers. I will practice medicine with conscience and dignity. The health and life of my patients will be my first consideration. I will hold in confidence all that my patient confides in me. I will maintain the honour and noble traditions of the medical profession. My colleagues will be as my brothers. I will not permit consideration of race, religion, nationality, party politics or social standing to intervene between my duty and my patient. I will maintain the utmost respect of human life from its conception. Even under threat I will not use my knowledge contrary to the laws of humanity. These promises I make freely and upon my honour. —Robert Richards, M.D., *Surgo*, February 1951.

BOECK'S SARCOID WITH COMPLETE HEART BLOCK MIMICKING CAROTID SINUS SYNCOPE

REPORT OF A CASE

Samuel Simkins, M.D., Philadelphia

Sarcoidosis is a disease with myriad facets concerning many of which relatively little is known. This is due chiefly to the relative benignity of the disease and consequent lack of autopsy material. Only 66 autopsied cases have been recorded in the literature.[1] Of these, only 15 cases presented direct cardiac involvement. Most of the cases were asymptomatic insofar as cardiac manifestations were concerned. Bernstein and others [2] in 1929 published the first report in the English literature of an autopsied case with cardiac involvement, their patient being a 52-year-old white man with no cardiac symptoms and nodules in the epicardium, as well as invasion of the superficial myocardial fibers. In the English literature, only 12 other authenticated autopsied cases are described.[3] One of Longcope and Fisher's cases,[3i] a 42-year-old Negro man with a marked cor pulmonale, showed sarcoid lesions throughout the myocardium and pericardium plus a large dense scar in the interventricular septum that accounted for a long history of auriculoventricular dissociation. In the non-English literature dealing with cardiac involvement in autopsied cases,[4] Schaumann [4b] emphasized, in 1914, the fact that sarcoidosis is a generalized disease. In the group of 15 autopsied patients with cardiac involvement, note should be taken of the predominance of the male sex and the high percentage of Negroes in the American literature. There is probably little doubt that many cases previously reported as tuberculous in reality represent myocardial sarcoidosis.[5] More recently the situation has been confused even more by the realization that the sarcoid lesion is found in many conditions other than sarcoidosis.[6]

Salvesen [7] in 1935 was the first to emphasize the importance of electrocardiographic changes in sarcoidosis. In two of the four cases he reported, there were changing abnormalities in cardiac mechanism with repeated bouts of paroxysmal tachycardia, transient right bundle branch block, and constant tachycardia. Cotter's [3h] patient showed an electrocardiographic picture changing from that of sinus tachycardia, with arborization block and low voltage, to that of auricular fibrillation, complete heart block, and shifting pacemaker. Varying degrees of cor pulmonale are to be expected in many cases of sarcoidosis in view of the extreme pulmonary involvement commonly found, often with considerable fibrosis.[8] The diagnostic import of tachycardia during afebrile phases of the disease as indication of possible cardiac involvement has been mentioned.[9] Sudden death, described in three cases,[10] has been attributed to the presence of active lesions extensively involving the myocardium, together with pronounced fibrosis.[1c] Many cases of cardiac failure, even of extreme degree, improve and may even be restored to full compensation.[11]

REPORT OF A CASE

V. C., aged 42 at that time, was first examined Feb. 6, 1939, on account of fainting spells and attacks of weakness. The first syncopal attack had occurred suddenly in 1932, was diagnosed as a "heart attack," and the patient had been kept in bed for 15 weeks. At that time the pulse rate was noted as 30. Subsequently she felt well. A second syncopal attack occurred in January, 1938, this time accompanied by pain in the left side of the chest anteriorly, dyspnea, sweating, and cyanosis. Again the diagnosis of "heart attack" was made, and the patient was kept in bed six months. She felt fairly well afterward until early in 1939 when she began to complain of occasional fleeting substernal "tightness" and interscapular pain, as well as fatiguability and weakness. In 1936, a hysterectomy with unilateral oophorectomy had been performed on account of uterine fibroids. Recently she had been suffering from occasional hot flashes, sweats, and chilliness.

Examination disclosed a middle-aged, stockily built, cooperative, alert woman of medium height. The pulse rate was 66, and the blood pressure was 104/78 mm.Hg. Aside from a loud low-pitched murmur localized at the apex, the heart was essentially normal. Fluoroscopy of the chest revealed nothing of note. The electrocardiogram was normal; the fasting blood sugar was 111 mg. per 100 cc.; the blood count and urinalysis were normal, and the result of blood Wassermann test was negative. The menopausal symptoms yielded promptly to the administration of estrogens. The pulse rate varied between 60 and 76, and the blood pressure between 104/66 and 110/74 mm.Hg.

On Aug. 5, 1941, while on vacation, she fainted. The pulse rate was 46. On her return home Aug. 19, 1941, physical examination

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was essentially as noted in 1939. The left carotid sinus was normal. Moderate pressure of a few seconds' duration over the right carotid sinus promptly produced dizziness, pallor, dimness of vision, weakness, and a sensation of impending syncope. The blood pressure and pulse rate were unaffected. Pressure over other portions of the neck, as well as over the carotid arteries below the carotid sinuses, produced no symptoms. Repetition of right carotid sinus stimulation produced syncope of a few second's duration with symptoms duplicating those of the attack she had suffered on her vacation. She was hospitalized Aug. 24, 1941, to Sept. 10, 1941. The electrocardiogram was normal and was essentially unchanged during syncope readily induced by right carotid sinus pressure. At no time was the blood pressure or pulse affected. Result of the tuberculin skin test was negative. An oral glucose tolerance test was normal. Blood sugar taken during syncope was 140 mg. per 100 cc. The basal metabolic rate was —3%, and the blood cholesterol was 220 mg. per 100 cc. Spinal fluid examination was completely normal. The patient was discharged with the diagnosis "carotid sinus syncope, cerebral type."

On Sept. 20, 1941, she complained of extreme fatigue followed within a few hours by distinct drowsiness, sweating, ashen hue, swelling in the region of the right parotid gland, and finally unconsciousness that lasted for two hours. The pulse rate was 54 with occasional extrasystoles. Three similar attacks occurred the same day. These attacks were unquestionably much severer than those previously suffered and much more prolonged. Thereafter the patient improved steadily, except for very mild attacks of dizziness accompanied by some dimness of vision, and remained thus through 1946. Stimulation of the right carotid sinus produced only very mild presyncopal manifestations.

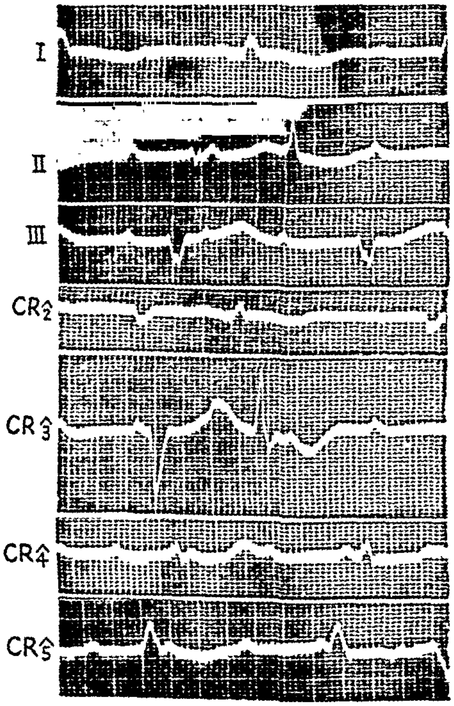

Fig. 1.—Electrocardiogram taken March 14, 1947, disclosing complete auriculoventricular block with a ventricular rate of 44 and auricular rate of 110, ventricular extrasystoles, and left bundle branch block. The P waves and the S-T interval are normal. The QRS complexes are slurred and small, their duration being 0.12 seconds. The T waves are inverted in leads 1 and CR_5.

On March 13, 1947, she suddenly developed weakness, dyspnea, and dizziness. The pulse rate varied between 30 and 48, with occasional extrasystoles. At this time pressure over the right carotid sinus, with the patient recumbent, produced no effects; pressure over the left carotid sinus caused the rapid onset of pronounced weakness, dizziness, and pallor. The pulse slowed slightly and became very irregular. The blood pressure was unchanged. Physical examination otherwise was normal. At no time during the course of the illness did superficial adenopathy appear. A nocturnal attack of acute pulmonary edema developed. She was hospitalized the next day. An electrocardiogram (fig. 1) taken later the same day disclosed complete auriculoventricular block with a ventricular rate of 44, ventricular extrasystoles, and left bundle branch block. An electrocardiogram (fig. 2) taken March 18, 1947, showed a cardiac rate of 79 with minor grade auriculoventricular block and right bundle branch block. A bedside caloric test was normal. The fundi were normal. Roentgenogram of the skull showed hyperostosis frontalis. The blood count was normal, as was complete examination of the spinal fluid. On March 25, 1947, an electrocardiogram showed essentially the same picture as on March 14, 1947. Intravenous administration of atropine sulfate (grain 1/75 [.87 mg.]) followed by carotid sinus stimulation had no noteworthy effect. Thereafter the pulse rate varied in erratic fashion between 44 and 84 per minute, grossly irregular in volume and rhythm. On March 26, 1947, the patient lapsed into a stupor lasting eight hours from which she could not be aroused. No abnormal neurological signs were present. Several episodes of syncope occurred April 1, 1947, followed the next day by sudden cyanosis and death.

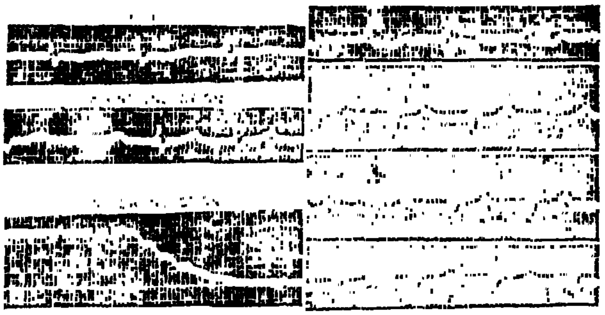

Fig. 2.—Electrocardiogram taken March 18, 1947, disclosing minor grade auriculoventricular block and intraventricular conduction defect, predominantly right bundle branch block. In one of the lead 2 tracings during injection of atropine, partial auriculoventricular block of the Wenkebach's period type occurred. The cardiac rate was 79, with regular sinus rhythm. The P waves are normal. The QRS complexes of 0.10 seconds' duration are slurred. The duration of the P-R interval was 0.40 seconds. The S-T interval is depressed in CR_1, and T waves are inverted in LL-1.

Report of Autopsy.—Autopsy permission was limited to a small thoracic incision. The pleurae show adhesions over the entire right upper lobe. The pericardium, peritoneum, ascending aorta, and pulmonary arteries are normal.

The heart is dilated in all chambers, right more than left. Numbers of patches seen beneath the epicardium are white in contrast with the yellow fat. The largest, 2 by 1 cm., is seen in the outer wall of the left ventricle at the junction of the upper and middle thirds and extends about 1 cm. into the cardiac muscle. The patch is slightly firmer than the muscle itself and is not encapsulated. Other similar patches of variable size are dotted around this one and are also found here and there in other parts of the heart. When the ventricles are opened, similar patches are seen in both, more in the left than the right. The largest patch involves the entire thickness of the septum in the region of the auriculoventricular bundle (fig. 3). It is seen on the endocardium just below the aortic valve as an irregular thickening with numerous pinpoint projections on the surface. This area extends for 2½ cm. below the septal (right posterior) cusp and is 4 cm. in width. There are a few vegetation-like lesions on the aortic cusp, particularly at the junction of the right posterior and anterior cusps, as well as irregular white thickening in all the cusps. When the area of the auriculoventricular bundle is sectioned, the wall is found replaced by tumor except for a few striations, which may be remains of muscle fibers. Away from the tumor patches the muscle is congested and in the right ventricle is somewhat flabby: right ventricle 0.3 cm., left ventricle up to 1.5 cm., aortic valve 7½ cm., pulmonary valve 8.5 cm., mitral valve 9.0 cm., tricuspid valve 10 cm. The mitral valve is moderately thickened throughout. The tricuspid and pulmonary valves appear normal, but there is growth in the papillary muscles of both the tricuspid and mitral valves.

The lungs show one or two nodules the size of a large pinhead in both upper lobes. The spleen is large and congested. The lymph nodes around the trachea and pericardium, and especially in the anterior mediastinum, are large and filled with pale, soft growth. The kidneys, gastrointestinal tract, liver, gall bladder, pancreas, and adrenals are normal.

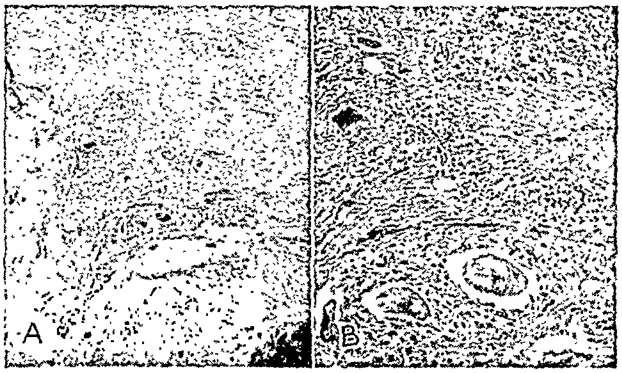

Fig. 3.—Photomicrographs of section of auriculoventricular bundle and aortic valve taken at area where the aortic valve joins the muscle. Note the tubercle-like structures, pronounced fibrosis, and presence of vacuolated material. (*A*, × 25; *B*, × 90.)

Histological Diagnosis.—Examination of the heart revealed the following: Tumors all have the same characteristics. They present tubercle-like nodules consisting of concentrically arranged endothelioid cells and very numerous giant cells of the Langerhans or tuberculous type. The giant cells are often extremely large. The nuclei are very numerous. They are crowded, sometimes in the center of the cells, sometimes at the periphery. The protoplasm of the giant cells often has a granular appearance and in some cells has an ovoid lining in contrast with the usual branching protoplasm. More recently formed tubercles show a fibrillary matrix which stains red with the Goldner modification of the Masson trichrome stain and may be fibroid. In the older tubercles a few collagen fibers are seen. There is no caseation. Several sections studied with the Ziehl-Neelsen carbolfuchsin stain are negative for the tuberculosis bacillus. The tubercles are sharply outlined and are surrounded by fibrous tissue. There are seldom any lymphocytes to be seen. In short, the tubercles are typical of the structures seen in Boeck's sarcoid. The heart muscle is infiltrated and is in the process of being slowly destroyed by these structures (fig. 4).

The lungs show circumscribed lesions similar to those noted in the heart. The liver shows moderate congestion and slight edema. In one place under the capsule, there is a characteristic sarcoid lesion, and smaller lesions are found in some of the portal areas. Several mediastinal lymph nodes were examined and showed characteristic lesions of Boeck's sarcoid.

COMMENT

The case reported here has many puzzling features which make it somewhat difficult to fathom, even in retrospect. There seems to be little question that the first attack of syncope in 1932 was on the basis of a hyperactive carotid sinus reflex. The bradycardia placed the type as predominantly vagal.[1b] In August, 1941, the patient apparently suffered a severe attack of vagal carotid sinus syncope. Yet in examination two weeks later, the attacks seemed to be typical of "cerebral" carotid sinus syncope.[12] The diagnostic criteria of cerebral carotid sinus syncope [13] were fairly completely met; namely, reproducibility of the attack by stimulation of the affected carotid sinus with no change in the blood pressure or pulse, failure to influence the attack by pressure over the carotid arteries below the carotid sinuses, and lastly, failure to produce an attack by stimulation of any extracarotid sinus areas in the neck or elsewhere in the body.[14] Infiltration of the region of the sensitive carotid sinus with 1% procaine hydrochloride for differentiation of hysteroneurosis was not done.[15] Neither was electroencephalography performed. What escaped emphasis at that time (September, 1941) was the development of what was apparently a mild parotitis and an unusually prolonged syncope. In retrospect, it is possible that this marked the clinical onset of sarcoidosis. The subsequent six years' relatively good health is not uncommon in sarcoidosis, as the disease is notoriously slowly progressive in some areas and simultaneously recessive in other areas.

The terminal phase of the disease developed with the onset of weakness, inconstant complete heart block, and acute pulmonary edema. The absence of peripheral adenopathy during the course of the entire illness is noteworthy but not uncommon.[16] It is of interest that the right carotid sinus at this time was relatively insensitive, whereas the hitherto normal left carotid sinus now exhibited sensitivity. The shift in hypersensitivity from one carotid sinus to the other has been noted on several occasions.[17] Speculation concerning the possible involvement of the carotid sinuses in this case by sarcoid lesions, with recession of the lesions in the right carotid sinus and concomitant involvement of the left carotid sinus, is of interest. The association between hypersensitivity of the carotid sinuses and coronary artery disease,[18] as well as the occurrence of anginal symptoms,[19] has received

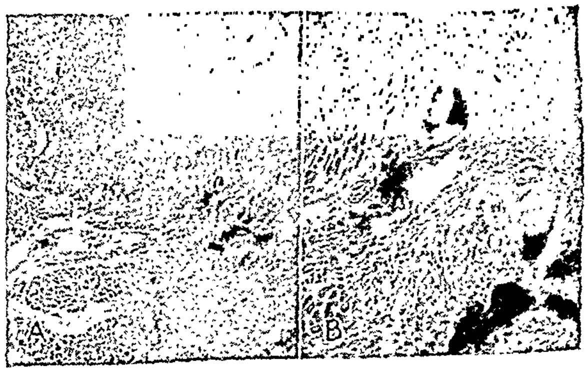

Fig. 4.—Photomicrographs of septum and left ventricle. Most of the wall is destroyed and replaced by the sarcoid process. Fibrosis is pronounced. (*A*, × 25; *B*, × 90.)

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14. Romano, J., and Engel, G. L.: Studies of Syncope: III. The Differentiation Between Vasodepressor and Hysterical Fainting, Psychosom. Med. **7**: 3, 1945.

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18. (*a*) Sigler, L. H.: Hyperactive Cardioinhibitory Carotid Sinus Reflex: Possible Aid in the Diagnosis of Coronary Disease, Arch. Int. Med. **67**: 177 (Jan.) 1941. (*b*) Draper, A. J.: The Cardioinhibitory Carotid Sinus Syndrome, Ann. Int. Med. **32**: 700, 1950.

19. Draper.[18b] Friedman, M.: The Anginal Syndrome as a Manifestation of Hyperactivity of the Carotid Sinus, Am. Heart J. **29**: 37, 1945. Nathanson, M. H.: Hyperactive Cardioinhibitory Carotid Sinus Reflex, Arch. Int. Med. **77**: 491 (May) 1946.

strong emphasis. The development of prolonged stupor terminally, with no focal neurological signs, was a puzzling clinical feature. Cerebral involvement in sarcoidosis has received relatively scant notice.[20] Most of the cases described had striking neurological aberrations. In the present case, possible sarcoid involvement of the brain stem is indicated by the lethargy that developed. The present case helps to unmask the often stressed benignity of sarcoidosis and poses the potentially serious prognosis of the relatively common cardiac involvement.

SUMMARY AND CONCLUSIONS

A case of generalized sarcoidosis with massive involvement of the myocardium and partial involvement of the auriculoventricular bundle is presented. The possible linkage of the sarcoidosis in this case with a 15 year history of carotid sinus syncope is discussed. Cardiac involvement by sarcoidosis is relatively common and heightens the gravity of the prognosis.

515 W. Godfrey Ave.

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FAMILIAL INCIDENCE OF PRIMARY CARCINOMA OF THE JEJUNUM

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and
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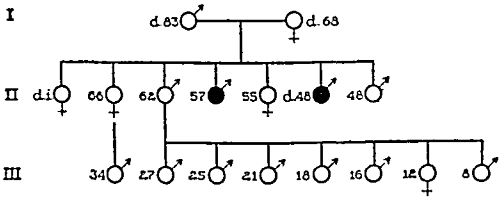
In reviewing the literature one finds that carcinoma of the small intestine forms from 0.029 per cent [1] to 6 per cent [2] of the gastrointestinal malignant lesions. After an exhaustive survey more than 550 cases of adenocarcinoma of the jejunum and ileum were found. However, only too rarely are carcinoid tumors segregated from primary carcinomas of the small intestine. Primary carcinoma of the small intestine exclusive of carcinoids was found to constitute about 1 per cent of the gastrointestinal malignant lesions in recent years at the Mayo Clinic.[3] Even more unusual than the low incidence of this lesion is the occurrence of a familial tendency. Only one case of familial incidence was found among the 63 cases in which carcinoma of jejunum and ileum was surgically treated from 1907 through June 1947, at the Mayo Clinic; this series of cases is discussed elsewhere.[4] Foster's description [5] of adrenocarcinoma occurring in father and daughter is the only report found in the literature of a familial incidence of this lesion in the jejunum and ileum.



Pedigree of two brothers having primary carcinoma of the jejunum. Data are presented as of June 1949. The white circles indicate the normal members of the family; the black circles, the affected members.

The present pedigree (chart) is reported in the hope that in time sufficient records may be accumulated to permit an analysis of the genetic factors, if any, in the etiology of this disease. Only members II-4 and II-6 were affected; all the others in the pedigree were reported by II-4 to be unaffected.

REPORT OF CASES

CASE 1 (II-4 in pedigree, chart).—*History.*—A white farmer, aged 53 years, was admitted to the clinic June 12, 1944, complaining that he felt pain in the left upper quadrant of the abdomen when having a bowel movement. For 18 months he had noted weakness and shortness of breath. Eight months before admission occult blood was found in his stools, and anemia was diagnosed. He was given ferrous sulfate orally, and his condition temporarily improved. For two months he complained of recurrent weakness, anorexia and intermittent cramps in the left lower quadrant of the abdomen, lasting for one hour after meals. He had alternating constipation and diarrhea, passed much flatus and had lost 45 pounds (about 20 Kg.) in one and a half years. He had received three blood transfusions in the six weeks before admission. His past medical history was noncontributory.

On examination the temperature was 98.6 F., the pulse rate 90, the respiratory rate 20 and the blood pressure 120 mm. of mercury systolic and 65 mm. diastolic. He was pale and anemic looking and had obviously had recent loss of weight. The other essential pathological changes were limited to the abdomen and consisted of a mass palpated in the left lower quadrant, visible peristalsis and borborygmus.

Laboratory Report.—The results of roentgenologic studies of the chest, stomach and colon were normal. Studies of the small bowel revealed carcinoma of the jejunum within 3 feet (about 91 cm.) of the ligament of Treitz. A plain film of the abdomen showed no distention of the small bowel. The concentration of hemoglobin was 7.65 Gm. per 100 cc. of blood (15 Gm. equals 100 per cent). The erythrocyte count was 3,230,000 per cubic millimeter, and the leukocyte count was 6,300. The sedimentation rate (Westergren) was 53 mm. in one hour. Analysis of gastric contents revealed 16 units of free hydrochloric acid and 20 units of total acid. The results of proctoscopic examination were negative.

Operative Report.—On June 24, 1944 the abdomen was opened through a primary left upper rectus muscle-retracting incision. No distant metastasis was found, and the liver was free of involvement. The lesion was found about 3 feet (about 91 cm.) below the ligamant of Treitz, almost obstructing the lumen of the bowel, and perforated onto the descending colon. This lesion was resected en masse, the tumor being removed widely with the mesentery, and an end to end jejunojejunostomy was performed aseptically over a three-bladed clamp. Resection of the

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[1] Maydl, K.: Über den Darmkrebs, Vienna, W. Braumüller, 1883, p. 7.

[2] Forgue, E., and Chauvin, E.: Le cancer primitif et intrinsèque (non vatérien) du duodénum, Rev. de chir., Paris 50: 470-582, 1914-1915.

[3] Berkson, J.: Personal communication to the authors.

[4] Pridgen, J. E.; Mayo, C. W., and Dockerty, M. B.: Carcinoma of the Jejunum in Ileum Exclusive of Carcinoid Tumors, Surg., Gynec. & Obst. 90: 513-524 (May) 1950.

[5] Foster, D. B. E.: Adenocarcinoma of the Small Intestine in Father and Daughter, Brit. M. J. 2: 78-79 (July 15) 1944.

descending colon was next accomplished, followed by colocolostomy, also with use of the three-bladed clamp.

Pathology Report.—The specimen consisted of 55 cm. of jejunum and 15 cm. of attached colon. The lesion was a grade 3 (Broders[6]) annular ulcerative perforating infected adenocarcinoma of the small intestine, 15 by 5 by 2.5 cm., with peritoneal involvement. Nodes had been the site of inflammation. The lesion was type B of Dukes's classification.[7] The colon was attached to the small intestine but not involved directly by the carcinoma.

Prognosis.—As of June 1950, the patient had no symptoms and was doing well.

Case 2 (II-6 in pedigree, chart).—*History.*—A farmer, aged 47 years, a brother of the preceding patient, was admitted to the clinic April 3, 1945. For five months he had complained of vague pains in the right lower quadrant of the abdomen, becoming sharper at certain times. He felt well on arising but had the pain in the evening. He had a sensation of fulness most of the time with bloating, but no distention or vomiting. He complained of early fatigue. Tumor of the cecum was diagnosed elsewhere. Two months before admission he had one severe attack of cramping pains in the right lower quadrant of the abdomen which awakened him from sleep.

On examination the temperature was 98.6 F., the pulse rate was 84 and the blood pressure was 110 mm. of mercury systolic and 70 mm. diastolic. The only essential abnormal finding was a mass in the left lower quadrant of the abdomen near the umbilicus.

Laboratory Report.—The results of roentgenologic examination of the chest, stomach and colon were normal. Studies of the small bowel revealed a carcinoma of the lower part of the jejunum. The concentration of hemoglobin was 7.8 Gm. per 100 cc. of blood (15 Gm. equals 100 per cent). The red blood cell count was 3,340,000 and white blood cell count was 5,800 per cubic millimeter. The results of examination of urine were normal, as were those of proctoscopic examination. The sedimentation rate was 29 mm. per hour.

Operative Report.—On April 14, 1945 the abdomen was opened through a primary upper middle right rectus incision. There was extensive nodal involvement, but the liver was free of metastasis. The lesion was found about 4 feet (about 122 cm.) from the ligament of Treitz perforating onto the lower part of the sigmoid colon. Resection of about 3 feet (about 91 cm.) of midjejunum was performed, and jejunojejunostomy was established over the three-bladed clamp. The involved portion of the lower sigmoid was removed en masse with the tumor, and an end to end anastomosis was effected with the three-bladed clamp.

Two courses of x-ray treatment were given subsequently over the abdomen.

Pathology Report.—The specimen consisted of 140 cm. of jejunum and 15 cm. of attached colon. The lesion was an annular, ulcerative, perforating, necrotic mucous adenocarcinoma, grade 4 (Broders), 8 by 6 by 3 cm. There was extensive peritoneal nodal and colonic involvement; the lesion was type C of Dukes's classification.

Prognosis.—The patient died Feb. 16, 1946.

COMMENT

These two cases are reported because of the rarity of primary carcinoma of the jejunum and ileum and the even greater rarity of a demonstrated familial tendency.

Of additional interest is the fact that these two cases present clinical signs and symptoms of anemia as well as chronic intermittent obstruction of the small bowel. Roentgenologic studies of the small bowel were accurate in both the diagnosis and the location of the lesions. One of the brothers is still alive more than six years after the time of his operation.

[6] Broders, A. C.: The Grading of Carcinoma, Minnesota Med. 8: 726-730 (Dec.) 1925.

[7] Dukes, C. E.: Examination and Classification of Tumors of the Rectum and Colon, Am. J. Surg. 46: 181-185 (Oct.) 1939.

DIAGNOSTIC AND THERAPEUTIC NERVE BLOCKS: NECESSITY FOR ROENTGENOGRAMS

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and
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The use of roentgenograms is necessary in performing diagnostic and therapeutic blocks for two reasons: (1) for more accurate placement of the needles and (2) as an objective record of the position of the needles at the time the anesthetic solution was injected.

Since diagnostic nerve blocks are used to determine the pathways of pain impulses, the problems involved are different from those encountered when nerves are blocked for the purpose of producing anesthesia for surgical procedures. When a patient presents himself for the relief of pain, his physician attempts to find the etiological factor that is causing the pain and to give the patient relief by removing the cause. Such an ideal course of events cannot always be achieved, sometimes because the source of the pain cannot be determined and sometimes because the diagnosed source of the pain cannot be eliminated. In such situations the physician's next recourse is to locate the peripheral nerves over which the impulses are traveling to the central nervous system. The peripheral nerves transmitting pain impulses can be singled out by individually blocking the nerves that supply the involved part and noting the result on the pain. The needles must be placed precisely and only small amounts of anesthetic solution may be injected, in order to avoid involving by the individual injections more nerve trunks than intended. The usefulness of the entire procedure may depend upon the selectivity with which separate nerves can be blocked. More accuracy and precision are therefore necessary in the placement of the needles for diagnostic nerve blocks than for nerve blocks for surgical anesthesia. In producing surgical anesthesia more needles may be used and larger volumes of anesthetic solution injected as indicated until the desired result is obtained. The knowledge as to which individual nerves have been interrupted is not necessary for the success of nerve blocks for surgical procedures but is the basis of the entire procedure of diagnostic nerve blocks.

Once the tip of the needle has disappeared from sight beneath the skin, its position can be determined only by

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From the Section on Anesthesiology (Dr. Pender) and the Section on Roentgenology (Dr. Pugh), Mayo Clinic.

Read before the Section on Anesthesiology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

(1) the relationship of the visible part of the needle to surface landmarks and (2) the palpation of deeper bony landmarks by means of the needle. While adequate in most instances for producing surgical anesthesia, such gross information about the position of the tip of the needle has not been accurate enough for many diagnostic blocks, even when performed by skilled anesthesiologists with many years of experience with local anesthesia. The use of roentgenograms enables even the less experienced physician to determine accurately the position of the tips of the needles and eventually to place them in the correct anatomic location for the injected anesthetic solution to have the desired effect. The farther below the skin the injection must be made, the more difficult the exact placement of the tip of the needle becomes and the more imperative the necessity for the use of roentgenograms. In figure 1 *a* the tip of the needle appears to be near the surface of the body of the third lumbar vertebra in apparently good position for blocking the lumbar sympathetic trunk. In figure 1 *b*, however, it is apparent that the tip of the needle is too far anterior to the body of the vertebra; hence the needle was withdrawn to the position shown in figure 1 *c*, and a good block resulted.

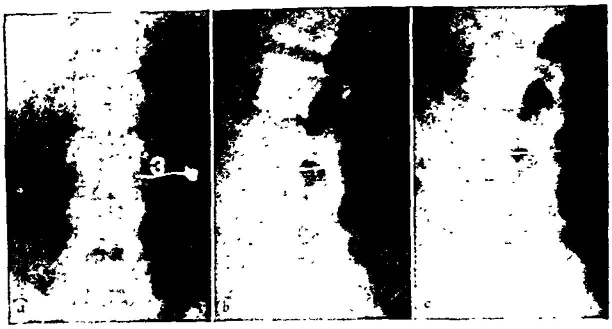

Fig. 1.—Placement of needle for diagnostic block of the lumbar sympathetic trunk. In the anteroposterior view, *a*, the position of the needle appeared satisfactory, but in the lateral view, *b*, the tip of the needle was seen to be too far anterior. The needle was partially withdrawn and in the lateral view, *c*, was seen to be in good position.

Surface landmarks are too indefinite for good localization of needles in patients with normal anatomic structure. In patients with deformity and abnormal structure a placement of needles for accurate nerve blocking is impossible without the aid of roentgenograms. An example is shown in figure 2. The patient had congenital abnormalities with a marked thoracic kyphosis and backache. It was desired to block the paravertebral nerves involved in the deformity. In spite of the fact that all palpable landmarks were hopelessly confused, the use of roentgenograms made it possible to place the needles as shown in figure 2 *a* and *b* and to relieve the patient's pain. On the basis of the result of the nerve block, it was elected to do a bone graft on the affected vertebrae, and the patient was afforded permanent relief.

Roentgenographic records of nerve blocks are valuable because, first, they make it possible for the diagnostic block to be repeated accurately and, second, they are convincing proof to the surgeon or other physician reviewing the results of the nerve block as to which nerves actually were blocked. Even the most detailed and lengthy description of how a nerve-blocking procedure was performed will likely not be clear to another physician and certainly will not be thoroughly convincing. In a busy clinic where many patients are being treated, even the same physician cannot repeat accurately the original procedure by following his own description of a nerve block performed several days previously. If, however, the position of the tips of the needles at the first block have been recorded on roentgenograms, the same or a different person at a later time in another place can repeat the original nerve block, provided the needles are shown by a second set of films to be in the same positions as at the original injection. It frequently happens that once the pain pathway has been established by diagnostic nerve blocks with short-acting anesthetic agents, more permanent interruption of the nerves transmitting the pain may be indicated. It is then desirable to repeat exactly the original nerve block which gave temporary relief of pain but to produce a therapeutic nerve block by the injection of a longer-acting agent, such as alcohol, ammonium sulfate solution, or phenol solution.

The use of roentgenograms increases the expense of the original procedure, but in some cases they eventually have proved to be an economy measure. It frequently happens that the patient lives some distance from the specialized clinic where the diagnosis is made and where a series of nerve blocks are prescribed to be performed at regular intervals. The patient need not necessarily have to suffer the loss of time and expense involved in frequent long trips back to the specialized clinic. These repeated nerve blocks may be performed in the patient's home town by his local physician, provided the local physician has the roentgenograms taken at the specialized clinic and reproduces, as proved by his own roentgenograms, the same placement of the needles.

Roentgenograms taken during nerve blocking serve to convince the surgical or medical consultant as to the procedure which was performed. The patient is impressed with the accuracy of the procedure and is more inclined to accept the recommendation which the consultant advises on the basis of the diagnostic nerve block whose accuracy is assured by roentgenograms. Once the nerve pathways of pain impulses have been established by nerve blocking, it may be advisable for such surgical procedures as section of a peripheral nerve, *rhizotomy*,

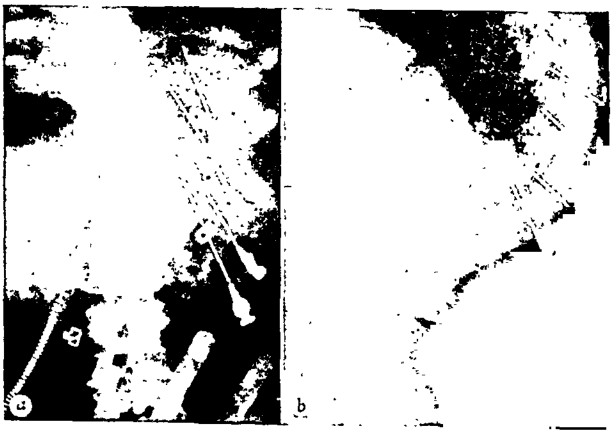

Fig. 2.—Placement of needles for diagnostic thoracic paravertebral somatic block in a patient with marked kyphosis. The points of the needles are shown in both the anteroposterior, *a*, and lateral, *b*, views.

chordotomy, or lobotomy to be performed. The surgeon knows from experience the inaccuracy involved in locating body segments and nerves by counting ribs or vertebral spinous processes. He is, therefore, likely to be reluctant to sever a specific nerve on the evidence resulting from a diagnostic block during which this specific nerve was supposed to have been located by such measures as he knows to be inaccurate. A neurosurgeon justly might refuse to section the left second, third, and fourth cervical nerves because injections made through three needles inserted at intervals caudad to the left mastoid process gave temporary relief of pain. If, however, the neurosurgeon should be shown a roentgenogram such as that in figure 3, he would have to admit that the second, third, and fourth cervical nerves were the ones blocked.

With the exact position of the tips of the needles used for diagnostic nerve blocks made known by roentgenograms, the ability to reproduce the effects of the block by section of the nerve can be predicted convincingly. Section of a nerve is followed frequently by undesirable effects, such as numbness and decrease in motor power, as well as the desirable effect of pain relief. When section of a nerve, or injection of a nerve with alcohol or a similar agent that produces a prolonged effect, is contemplated, it is well first to block the nerve with an anesthetic agent that produces a short temporary effect. This is called a "prognostic block" because it gives the patient a chance to experience the complete effects of section of the nerve before the effects are permanent. If the patient decides that the side effects which follow a block of the nerve are more annoying than the original pain, it is possible to allow the conditions to return to their former state. If the patient desires the results of the prognostic block to be made permanent, such can be promised only if a roentgenographic record has been made of the position of needles used in the prognostic block.

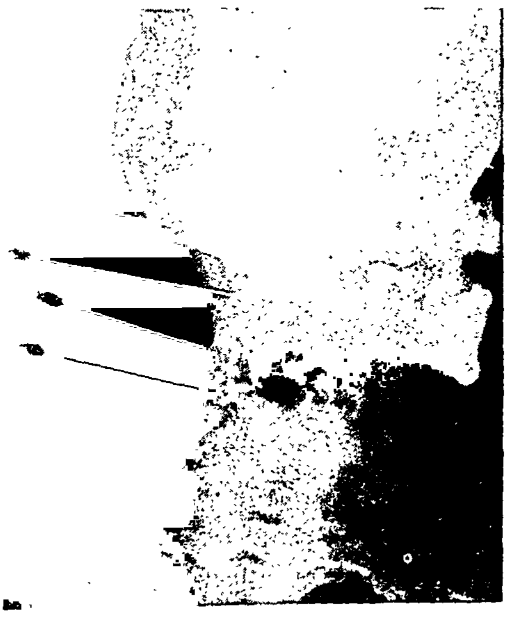

Fig. 3.—Placement of needles for diagnostic block of deep cervical somatic nerves. An artefact caused by a bobby pin appears at the occiput above the three needles.

TECHNICAL SUGGESTIONS

Anteroposterior and lateral roentgenographic views must be made whenever possible to locate the tip of the needle accurately in both planes (fig. 1). When blocks of nerves such as of the stellate ganglion or the obturator nerve are done and a satisfactory lateral roentgenographic view cannot be obtained, the position of the tips of the needles may be located with stereoscopic views.

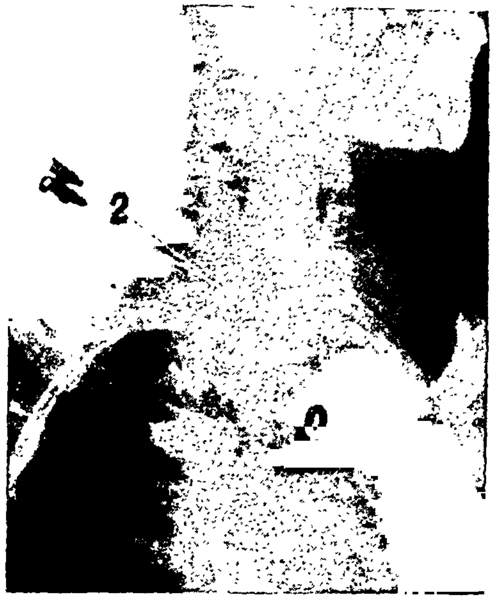

Fig. 4.—Placement of needles for diagnostic block of the stellate ganglion. The lead marker O was placed in the suprasternal notch and used as an aid in positioning the needles.

When the first placement of the needle is found not to be satisfactory, the needle should be left in place and other needles inserted using the first as a guide. The needles may be labeled for identification by placing lead markers near the place where each needle pierces the skin (fig. 1 and 2). Sometimes the discomfort of passage of extra needles can be avoided if a lead marker is first placed on a superficial landmark and a scout (preliminary survey) film taken to learn the anatomic relationship between the position of the lead marker and the nerve to be blocked. In the case represented by figure 4, it was desired to produce a block of the right stellate ganglion with dehydrated (absolute) alcohol for a right shoulder-hand syndrome. By placing a lead "O" in the suprasternal notch and taking a scout film, it was possible to place the tip of the very first needle on the body of the first thoracic vertebra. This position would have been satisfactory for the injection of 5 to 10 cc. of an aqueous diffusible solution of an anesthetic agent such as procaine for a diagnostic block. However, the roentgenogram showed that the tip of the first needle was too far medial on the body of the vertebra to allow the stellate ganglion to be blocked by the injection of 2 cc. of dehydrated alcohol, which does not diffuse widely. Accordingly, a second needle was introduced so that its tip touched the body of the vertebra lateral to the tip of the first needle and near the base of the transverse process where the stellate ganglion lies. The injection of alcohol through the second needle promptly resulted in Horner's syndrome.

SUMMARY AND CONCLUSIONS

Roentgenograms to show the position of the needles must be made when diagnostic and therapeutic nerve blocks are performed. Only by this means can the operator position the tips of the needles with enough accuracy to block individual nerves selectively with the use of small volumes of the anesthetic agent. The roentgenograms serve as objective records which may be utilized later by the operator to obtain an exact repetition of the nerve block either by injection or by some other surgical procedure.

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DIAGNOSTIC AND THERAPEUTIC NERVE BLOCK

GENERAL CONSIDERATIONS

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The anesthesiologist of today performs a great variety of functions in addition to clinical anesthesia. Among these, perhaps his most important single function and the one that is most gratifying, is the relief of pain.

Pain, in its severer forms, as for example trigeminal neuralgia, migraine, or the various colics, is one of the heaviest crosses the human race has to bear. Usually pain is a danger signal or warning of some beginning disease process, trauma, or physiological upset. It also may be the hang-over effect of past disease processes. It can arise from purely psychic origin, which is perhaps the most difficult to alleviate.

Transient painful processes usually are no problem, but persistent pain, whether mild or severe, over weeks, months, or years can produce serious and far-reaching sequelae, which affect the patients' work, play, and sleep, alter their personalities, and produce changes in every phase of their daily lives.

Until recent years physicians as a whole tended to minimize the importance of persistent pain, particularly if the cause was not readily apparent. Treatment tended to be symptomatic, and many patients who did have a physical basis for their pain were classed as neurotics and treated as such. As a result, they tended to become "doctor's office pests," drifting from one physician to another and frequently falling into the hands of quacks, who preyed on their infirmity to line their own pockets or laid the seeds for beginning drug addiction. It is therefore small wonder that the deserving members of this group of patients frequently lost faith in the ability of the medical profession to help them.

Another contributing factor in holding back the progress of rational therapy of pain has been lack of knowledge of the multitude of pain pathways and mechanisms, the knowledge of which is essential if effective treatment is to be carried out. Some of these pain mechanisms are very bizarre, and even today our knowledge of the complex functions of the central and autonomic nervous systems is indeed elementary. An example of the weird phenomena one encounters in therapeutic block is the relief of hip pain obtained by blocking the anterior, lateral, or posterior femoral cutaneous nerves. On the surface, there is no apparent logical explanation for these results, except that the pain might be caused by muscle spasm lower down over an area supplied by these nerves.

We know much more about pain and the nervous system than we did a few years ago, thanks to the neurophysiologist, neurologist, neurosurgeon, and neuropsychiatrist, but a major portion of this progress, both experimental and clinical, stems from the interest of the anesthesiologist in this field, and it is because of this interest that pain clinics have been established by and under the direction of anesthesiologists over past years. It was not only natural but appropriate that the anesthesiologist largely should take over this field, since his job is to relieve pain in general, and frequently by the injection of nerves or nerve plexuses, in which he has received special training.

At present there are hundreds of pain clinics throughout the country, in addition to a great number of private anesthesiologists who are devoting a portion of their time to this subspecialty. This proves to be one more example of the fact that the specialist in anesthesia may be of aid to his confreres in various other medical specialties.

Broadly speaking, pain falls into two general classifications: (1) due to organic disease; (2) of indeterminate origin. That resulting from some organic disease, such as one of the colics, trauma, angina, previous surgical procedures, or advanced cancer, usually is not difficult to diagnose and treat. Even where pain due to organic disease is severe and persistent, as in inoperable carcinoma, the problem of control is more or less clear-cut. We can inject the pain-carrying nerves and repeat the injections as required; the nerves may be sectioned surgically to provide lasting relief, or, if these measures fail, we are justified in administering whatever analgesics are necessary to make the patient comfortable, since addiction need not worry us in hopeless cases or in cases of elderly patients.

The same cannot be said for the multitude of patients with pain the origin of which is indeterminate, or seemingly so. Many of these patients are young, and we must be assured that whatever treatment we institute will not do them harm or exacerbate their present pain or perhaps even start a different one. This brings to mind a patient into whom I had injected alcohol for pain in the posterior chest wall and had produced good relief. A few days later I met the man on the street and asked him whether the pain in his back was gone still. "Oh, sure, Doc," he replied, "you fixed that one, but this new pain in front is killing me."

From the Section on Anesthesiology, Mayo Clinic.

Read before the Section on Anesthesiology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

This demonstrates how careful we must be in selecting patients for injection therapy, especially when potent and irritating agents such as alcohol are to be used. The psychological approach to this group of patients is just as important in effecting a cure as the ability to place a needle correctly on a nerve.

Most of these patients are skeptical about obtaining relief, having tried a variety of physicians and treatments without results. On the other hand those who are seen for the first time often have the reverse attitude and feel that to be treated is to be cured. Patients with either attitude should be handled in a similar manner, and extreme caution should be exercised in outlining the diagnosis, treatment, and possible results.

It is probably better to promise little in the line of results, although the patient should be encouraged to believe that relief is possible. It is well, however, to explain in detail to the patient the nature of the condition, what may be causing the trouble, the details of the treatment, and what to expect during and after the injection.

The psychological approach to each individual patient is of the greatest importance, for an incorrect approach can either make or break the most effective type of treatment. Therefore, if we are to improve our results in these patients in the future, it is obvious that the internist, neuropsychiatrist, neurosurgeon, and anesthesiologist must work hand in hand, giving one another the maximum cooperation.

Nerve block for pain is of two types: (1) for aid in making or confirming a diagnosis; (2) for actual therapy. The diagnostic block is usually carried out by using a local anesthetic agent the duration of effect of which is limited. Sometimes the use of a local anesthetic agent may provide relief for days and even weeks or months. In any event, if the local block is effective and the diagnosis is established, one must decide on the least drastic therapeutic measure that will give the patient more or less permanent relief. Several choices are available: (1) repeat the local anesthetic injection at periodic intervals; (2) inject a longer-acting agent, to be repeated if necessary; (3) inject dehydrated alcohol; (4) suggest section of the pain-carrying nerves; (5) suggest that the patient learn to live with his pain if it is not too severe or persistent; (6) combine roentgen therapy and injection; (7) combine physical therapy and injection, or (8) combine any of the foregoing with psychotherapy. The choice will depend on the patient's physical and emotional make-up; the cause of his pain, if apparent; the nature, persistence, and severity of the pain; his tolerance to pain; the degree of effectiveness of the preliminary block, and the patient's attitude toward further treatment.

The prime essential, before any attempt is made to treat these patients, is to obtain a detailed history. Even if a previous history has been provided by the referring physician, time will be spent well in asking the patient as many specific questions as one can think of, since this may provide an insight into his physical and emotional problems which might otherwise be overlooked. Questions may be divided into two parts: (1) those asked during the taking of the history; (2) those asked just before, during, or after the block.

During the taking of the history you must have the following information: (1) the site, nature, and severity of the pain; (2) how long the patient has had pain; (3) whether it has increased in severity or remained the same since its inception; (4) whether the pain is increased when pressure is applied over the area, or by position, movement, exercise, and so forth—many neurotic patients interpret pressure as pain and by and large are not good candidates for block; (5) what the patient's own opinion is as to what might have caused the pain in the first place; (6) whether the pain interferes with sleep, and (7) whether the pain can be controlled with acetylsalicylic acid. The last two questions give a fairly accurate estimate of the severity of the pain and what the patient has been taking for it. If, after careful questioning, it appears that a block will be of either diagnostic or therapeutic value or both, certain specific questions must be asked at this time:

1. If the patient has been referred by another physician or physicians, it is well to find out what they told the patient he might expect. Perhaps they minimized the nature and effects of the block; perhaps they overstressed these points, or, in the case of a patient with cancer, the true cause of the pain may have been withheld, and the patient will come expecting a cure and complete relief of symptoms.

2. When the pain is of the intermittent type, it is essential to ask the patient whether he has pain now. It is difficult to estimate the degree of relief of pain when there is nothing to relieve at the time of injection. In such instances the patient may have a means of bringing on his pain, and this should be encouraged before injection. Otherwise, it may be wise to put off the injection until another attack of pain begins.

In nervous and excitable patients who tolerate pain poorly, the injections may have to be carried out with the patient under light thiopental sodium (pentothal sodium®) or gas anesthesia, but usually a more reliable estimate of results can be made with the patient awake.

Before the block is begun, the patient's confidence and cooperation should be enlisted further by a frank discussion of what you are going to do, how much it will hurt, and what possible after effects he may experience. Most patients fear being stuck with needles, but the majority will attempt to cooperate if they are told what to expect. They also should be told that the first injection is mainly for diagnosis and that when the effect of the local anesthetic wears off their pain probably will return.

During the injection one should attempt on inserting the needles to obtain paresthesias which are similar to the patient's old pain. Nevertheless, the patient should not be subjected to a prolonged period of painful needle sticks merely to obtain paresthesias. In fact, the use of roentgenograms after the needles are in place and before the injection is made has almost obviated the necessity of obtaining paresthesias, unless they can be produced on the first two or three tries.

Nothing has been of more value toward insuring accurate results in these cases than routinely checking the position of the needles by roentgenologic methods. The most experienced regional anesthesiologists have found that needles they thought were correctly placed were often in gross malposition.

When the injection is completed, the patient should be allowed to rest quietly for 15 to 30 min., his attention being diverted, if possible, from his pain or the effects of the injection. At the end of this time he may be questioned as to results. If partial relief has been obtained, a further important question should be asked, namely, whether he would be satisfied if this degree of relief could be made permanent. This question should be repeated two or more times to make sure that the patient is either satisfied or dissatisfied with the results. His answer will dictate what the type of permanent treatment should be.

Certain types of pain seem to be more amenable to treatment than others. The pain of acute pancreatitis can usually be well controlled by splanchnic block, but the results are not nearly so satisfactory in pain associated with the gallbladder, stomach, and duodenum.

Among the blocks that are particularly efficacious are caudal block for pain due to pelvic cancer, bilateral alcohol block of the stellate ganglion for anginal pain, and blocking of the appropriate divisions of the fifth cranial nerve for trigeminal neuralgia. Usually good candidates for physical therapy present favorable cases for sympathetic block, since in these patients the two methods of treatment aid each other. In a similar way, the combination of therapeutic block with suitable psychotherapy and suggestion is valuable in certain types of neurotic patients.

In some patients nerve blocking seems to be contraindicated, for example, psychotic patients who have had multiple operations and certain injuries of the brachial plexus. Patients with traumatic avulsion of nerves can seldom be cured except by chordotomy. Patients with a phantom limb can occasionally be cured by sympathetic block. Patients who have had pain over prolonged periods, controlled by opiates or narcotics, or who have resorted to barbiturates for sleep and rest present very difficult problems. It is doubtful that any block will give them the comfort they look for until their addiction problem has been resolved. Unless one is convinced that this type of patient is thinking sanely, therapeutic block will be most unsatisfactory.

At the present time there is a relatively small percentage of patients with painful syndromes who can be given permanent or semipermanent relief. The fact that we are helping many patients who received little or no help in the past is encouraging. We can do still better if we apply ourselves to this important field. Certainly our results will be better when we have an agent that will produce a prolonged action without too many deleterious side effects. The longer-acting local anesthetic agents have not supplied the answer, nor has alcohol or the ammonium salts in benzyl alcohol.

A good result seems to make a dozen bad ones worthwhile. I recall a patient, a railroad roundhouse foreman, who had a small painful area in the chest wall which affected his sleep, work, personality, and livelihood. He had had it for three years and was most discouraged. He did not appear to be neurotic, but this small area of pain was coloring his whole life. The cause of his pain was not obvious, but for diagnosis I blocked the area involved. He obtained immediate relief and was dismissed when he was pain-free for 48 hr. After three months he wrote me that his pain had not returned and that he could put in a comfortable day's work for the first time in three years.

I do not yet know the origin or basis for this man's pain. The block therapy in his case was more or less a stab in the dark, but it produced results. In a neurotic patient who interprets even pressure as pain, this type of therapy probably would not have worked.

In conclusion, I should say that diagnostic block in suitable cases will give us much information toward either curing or alleviating pain, and, in addition, therapeutic block will make many miserable patients comfortable and give them a new outlook on life.

102 Second Ave., S. W.

PONTOCAINE® SOLUTIONS FOR REGIONAL ANALGESIA OTHER THAN SPINAL AND EPIDURAL BLOCK

AN ANALYSIS OF 2,500 CASES

Daniel C. Moore, M.D., Seattle

Nerve block and local infiltration analgesia is often one of the important parts of a doctor's armamentarium. For years procaine hydrochloride (novocain®) has been the standard local anesthetic agent in most hospitals throughout the country. It meets Labat's requirements of a desirable local anesthetic agent:[1] (1) ease of sterilization; (2) ready and complete solubility in cold isotonic salt solutions in such concentrations as actually are used for induction of regional analgesia; (3) rapid and complete absorption locally, leaving no traces of its passage at the site of injection; (4) low toxicity, both when used in weak solutions and in such doses as are sufficient to produce surgical anesthesia; (5) ability to produce rapid onset of anesthesia; (6) one that is not decomposed by addition of a vasopressor, and (7) one that is not irritating to the tissue. Deaths have occurred during the use of procaine, but, since the acceptable approved agent was employed, a general feeling of opposition to its continued use was not aroused. One of the objections to procaine is the fact that the analgesia produced is relatively short, i. e., three-fourths to one and one-half hours. Therefore, in spite of establishing a satisfactory regional block, it often dissipates itself before surgery is completed. This is annoying to both doctor and patient, and consequently many procedures are performed under general anesthesia, in spite of the fact that local analgesia

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From the Department of Anesthesia, Mason Clinic.

Tetracaine (pontocaine®) hydrochloride furnished through the courtesy of Winthrop-Stearns, Inc.

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[1] Labat, G.: Regional Anesthesia, London and Philadelphia, W. B. Saunders Company, 1930.

otherwise is preferred. Therefore, for the past few years we, as well as other anesthesiologists, have been interested in finding a drug with a low toxicity and a prolonged duration that might be employed routinely for nerve block and local infiltration analgesia.

TABLE 1.—*Comparative Total Intravenous Dose of Local Anesthetic in Cats*

	Average Fatal Dose, Mg./Kg.	Ratio Compared with Procaine	Equivalent Dosage Ratio	Corrected Toxicity Ratio Compared with Procaine
Procaine (novocaine®).....	49.6	1.0	1.00	1.00
Piperocaine (metycaine®) hydrochloride	28.8	1.7	0.80	1.36
Tetracaine	8.6	5.8	0.10	0.58
Dibucaine (nupercaine®) hydrochloride	3.5	14.2	0.05	0.71

A local anesthetic agent with a prolonged duration of action offers the following advantages:

1. It permits regional analgesia to be carried out with finesse and minimal trauma, since rapid completion of the block is not necessary to conserve analgesia. This is especially true in extensive block procedures.
2. The anesthesiologist can give valuable instruction to his pupils. This is important, since it will increase the number of men who can skilfully execute regional procedures.
3. Local anesthesia may be used when indicated for the benefit of the patient, in spite of the necessity for slow, careful dissection. This is especially true in cases of diabetes and hypertension.
4. The operating surgeon is at ease, since he knows that the surgical analgesia will be adequate for five to six hours.
5. The surgical schedule may be changed suddenly for an emergency, even if the block has been executed. This is a definite advantage to the patient, since a second block will not have to be performed before operation, even if the emergency procedure should require two or three hours.
6. Postoperative analgesia is prolonged, thus reducing the necessity for large amounts of opiates during the immediate postoperative period. This is important because, if the patient is free from pain and not under the influence of opiates, he will follow the "stir-up" regimen immediately.
7. The block may be carried out at the convenience of the anesthesiologist, a factor of obvious importance in private practice.

During the past few years an increasing number of articles have appeared on the use of tetracaine (pontocaine®), indicating that it might be the answer to the search for a local anesthetic agent with Labat's qualifications plus a prolonged duration of action.[2] It has been shown in Novak's table of comparison [3] that, although milligram for milligram tetracaine is more toxic than procaine, it is effective when employed in solutions one-tenth as strong as effective procaine solutions (table 1). Therefore, effective solutions of tetracaine are actually less toxic than comparable procaine solutions.

A previous paper based on the first 1,004 cases in this series has been published,[2d] and the growing interest in the use of tetracaine for nerve block and local infiltration prompted this reevaluation of our clinical study on this subject.

PROCEDURE

The procedure employed was the same as that reported in the first 1,004 cases and briefly consisted of the following salient points.[2d] Patients of all ages, physical status, and operative risk for whom nerve blocks were advocated received tetracaine without screening (table 2). Tetracaine (pontocaine hydrochloride "niphanoid"®) crystals were used in all cases and mixed with isotonic sodium chloride solution to the desired concentration and volumes. Each operation was counted as a case, not each individual block—i. e., a block for a radical mastectomy was counted as one anesthetic procedure, not three, although it includes a brachial block, an intercostal block, and a superficial cervical block. Premedication varied from none to heavy sedation with barbiturates, opiates, and the belladonna derivatives. Epinephrine (adrenalin®), suprarenin,® and phenylephrine (neo-synephrine®) hydrochloride in amounts from 0.2 cc. to 0.5 cc. were employed in the study, regardless of the volume of solution. All patients received the calculated number of milligrams of tetracaine and cubic centimeters of vasopressor drugs. For example, if we mixed 90 cc. of 0.15% tetracaine with 0.2 cc. of epinephrine (1:1,000) for a brachial block, the patient received the total amount, even though paresthesias were obtained and a satisfactory block would have resulted after 40 to 50 cc. of the solution was administered. This method was selected in order that the patient might receive a relatively large number of milligrams of tetracaine and a calculated number of cubic centimeters of vasopressor drug.

RESULTS AND DISCUSSION

In the 2,500 procedures 39 different types of regional blocks were performed (table 3). There were 1,352 males and 1,148 females in the series of patients. Many of the patients having therapeutic and diagnostic blocks required more than one block, which explains the discrepancy between the number of patients and the number of cases. A large variety of operations in various parts of the body were performed (table 4).

Tetracaine (pontocaine hydrochloride "niphanoid"®) crystals are readily soluble in isotonic sodium chloride solution and did not produce irritation or slough of the skin. It was rapidly dissipated from the tissue, and skin wheals and tumefactions disappeared in one-half to one hour.

TABLE 2.—*Physical Status Record, American Society of Anesthesiologists Code*

Age Group	1	2	3	4	5	6	7	Total
0-10........	3	2	1	..	8	..	..	14
10-20........	57	8	1	2	30	..	..	98
20-30........	238	33	8	..	52	..	..	331
30-40........	235	59	1	1	76	..	..	372
40-50........	280	108	13	4	130	..	..	535
50-60........	217	157	35	5	133	2	1	550
60-70........	128	143	49	10	84	9	..	423
70-80........	23	74	40	3	17	..	..	157
80-90........	..	6	5	4	2	2	1	20
Total.....	1,181	590	153	29	532	13	2	2,500

Solutions of tetracaine appear to be stable and retain their anesthetic properties for at least 48 hr. Our solutions were not allowed to stand for a longer period, and, at present, the solution is mixed just before the block is performed. In the early part of the series one to two days' supply was prepared, sterile Erlenmeyer flasks being used as mixing receptacles. These flasks often stood 24 to 48 hr. before the solution was used, and satisfactory anesthesia was obtained. Tetracaine solutions can be boiled repeatedly without deterioration but are rendered inactive by alkalis. Most glass receptacles are highly alkaline; if tetracaine solutions are prepared in such containers, the possibility of having a chemically altered solution must be considered. This is the reason that stainless steel mixing receptacles are used.

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[2] (*a*) Kornfield, N.: Regional Anesthesia for Operations in the Upper Abdomen, Anesth. & Analg. **27**: 204-209 (July-Aug.) 1948. (*b*) Horan, J. S.: Treatment of Lepra Reaction and Acute Neuritis and Arthritis with Nerve Block and Intravenous Administration of Procaine, Internat. J. Leprosy **17**: 211 (July-Sept.) 1949. (*c*) Moore, D. C.: Pontocaine Hydrochloride for Brachial Block Analgesia, Anesthesiology **9**: 281 (May) 1948. (*d*) Moore, D. C.: The Use of Pontocaine Hydrochloride for Nerve Block and Infiltration Analgesia, Therapeutic, and Diagnostic Blocks: 1004 Cases, Anaesthesia **11**: 65 (Jan.) 1950. (*e*) Moore, D. C., and Bonica, J. J.: Combined Brachial Block and Spinal Analgesia for Bone Graft Surgery, Anesth. & Analg. **29**: 43 (Jan.-Feb.) 1950. (*f*) Bonica, J. J., and Moore, D. C.: Brachial Plexus Block Anesthesia, Am. J. Surg. **78**: 65 (July) 1949.

[3] Novak, S., quoted by Saklad, M.: Spinal Anesthetic Agents: Methods and Indications, New England J. Med. **213**: 1226 (Dec.) 1935.

TABLE 3.—*Types of Nerve Blocks Performed*

Nerve Block and Local Infiltration	No. of Surgical Blocks	No. of Diag. and Therap. Blocks	No. of Patients	Total No. of Blocks
1. Brachial	441	6	362	447
2. Breast (brachial, intercostal and superficial cervical)	21	..	20	21
3. Cervical (deep and superficial)	188	4	161	192
4. Cervical nerves individually for headache	..	8	5	8
5. Femoral	2	2	3	4
6. Gasserian ganglion	..	1	1	1
7. Hernia	76	..	76	76
8. Infiltration	46	42	85	88
9. Infraorbital	3	..	3	3
10. Intracapsular (knee or shoulder)	7	2	9	9
11. Intercostal (bilateral) and deep splanchnic	382	2	370	384
12. Intercostal bilateral and unilateral	36	366	213	402
13. Lateral femoral cutaneous	..	2	1	2
14. Lateral femoral cutaneous and femoral	1	..	1	1
15. Lumbar sympathetic	..	120	62	120
16. Mandibular	17	5	15	22
17. Mandibular and deep cervical	14	..	14	14
18. Maxillary	1	9	5	10
19. Maxillary and mandibular	17	3	17	20
20. Maxillary, mandibular and deep cervical	4	2	6	6
21. Maxillary (right), manidibular (right), and left mental	1	..	1	1
22. Maxillary and supraorbital or infraorbital	1	2	2	3
23. Median, ulnar, and radial (at wrist or elbow)	28	..	28	28
24. Mental block	14	..	14	14
25. Obturator block	..	6	6	6
26. Paravertebral	14	46	50	60
27. Paravertebral (angina)	..	5	5	5
28. Peroneal	1	..	1	1
29. Phrenic	..	5	3	5
30. Pudendal	..	2	1	2
31. Radial and median (at wrist)	1	..	1	1
32. Sacral nerves individually	..	1	1	1
33. Sciatic and femoral	262	8	229	270
34. Splanchnic (deep)	..	11	6	11
35. Stellate ganglion	..	238	99	238
36. Suprascapular	..	18	10	18
37. Supratrochlear and supraorbital	..	1	1	1
38. Sciatic, femoral, lateral femoral cutaneous, and obturator	3	..	3	3
39. Ulnar	2	..	2	2
Total	1,583	917	1,892	2,500

A vasopressor agent may be used in tetracaine solutions without causing decomposition. It is not necessary to make the tetracaine solutions potent anesthetic agents. This was found to be true because the solutions that were given to 17% of the patients who had therapeutic and diagnostic blocks and to diabetic patients did not contain a vasopressor drug. The vasopressor drug seemed to have little influence on the duration of anesthesia or postoperative analgesia (table 5). This was especially true in the case of the diabetic patient who received no vasopressor and whose anesthesia and postoperative analgesia times were comparable to those of patients in whom a pressor agent was employed.

Blood pressure is unaffected by the tetracaine solution, except when a vasopressor is used, and in such cases a transient rise in blood pressure with a fall to normal in 30 to 40 min. may occur. Pulse rate and respirations are unaffected.

Massive amounts of tetracaine hydrochloride in milligrams and large volumes of solution were used. It can be seen from table 6 that, although percentages varied to meet various volume demands in extensive block procedures, the average number of milligrams of tetracaine hydrochloride employed in each block was fairly constant. The minimal dosages used were not included in this chart because we were trying to determine whether large doses of tetracaine were safe. All the concentrations of tetracaine shown in table 6 produced effective operating analgesia. The higher percentages were used merely to shorten the time period between completion of the block and onset of surgical anesthesia. The establishment of analgesia with tetracaine depended entirely on the percentage employed and the accuracy of the placement. Concentrations of 0.1, 0.15, 0.2, and 0.25% require 30 min. or longer to assure a workable block. Concentrations of 0.3 to 0.5% produce anesthesia in less than 20 min. (table 7).

Probably the outstanding property of tetracaine hydrochloride is its prolonged action. It gives a minimum of five hours' operating time, as proved by actual operations. We have done gastric and pancreatic resections, using deep splanchnic and intercostal blocks for relaxation with 2 l. of nitrous oxide and 1 l. of oxygen a minute for analgesia. Also, blocks for two-hour operations have been performed three hours before the surgical procedure was started, and anesthesia of the part was still present at completion of the operation. Table 4 shows actual operating and anesthesia times of various surgical procedures.

TABLE 4.—*Operations (Therapeutic and Diagnostic Block Not Included)*

Regions	No. of Op.	Actual Op. Time, Hr.		Actual Anes. Time, Hr.	
		Average	Maximum	Average	Maximum
Arm					
(a) Closed (fractures, etc.)	90	½	1	1½	2
(b) Open (tendon repairs, grafts, amputations, etc.)	386	¾	5	1¾	5½
Breast					
(a) Radical mastectomy	17	1¾	2½	2½	3¼
(b) Simple mastectomy	6	1¼	1¾	1¾	2¾
Abdominal					
(a) Extraperitoneal					
1. Hernia	80	½	1½	1	2¼
(b) Intraperitoneal					
1. Cholecystectomy	177	1¼	3	1¾	3¾
2. Colon resection	15	2	3½	2¾	4¼
3. Gastric resection	149	2¼	4¼	3	5
4. Miscellaneous	51	1	2	1½	2¾
5. Splenectomy	3	1¾	1¾	2¾	3
6. Whipple	8	2¼	4¾	3¼	5½
7. Explorations	6	½	1½	1½	2½
8. Secondary closures	5	1	2	2	3
Leg					
(a) Closed (reductions and manipulations)	65	½	1¼	1	2
(b) Open (reductions, sequestrectomies, bunionectomies, etc.)	204	1	2½	1½	3½
Miscellaneous					
(a) Infiltration for lipomas, etc.	36	½	1¼	1	2¼
Neck and Face					
(a) Brachial cyst	10	1	2	1½	2¾
(b) Face (lip resections, fractured jaws, etc.)	77	½	3	1	3½
(c) Phrenic nerve crushes	6	½	1	1	2½
(d) Thyroidectomy	166	1	1½	1½	2½
(e) Radical neck dissections	10	1½	3½	2	4¼
Thorax					
(a) Intrapleural					
1. Intracostal blocks to supplement endotracheal anesthesia	16	2½	4	3½	5
Total	1,583				

The exact maximum time tetracaine effect will last has not been determined. Skin anesthesia has been present for eight to nine hours, but this does not indicate that the deep tissues could be manipulated (table 7).

Postoperative analgesia is indeed striking and gratifying to the patient, surgeon, and anesthesiologist. Analgesia may last for nine hours and definitely permits early institution of the "stir-up" regimen (table 7). The amount of opiates required postoperatively is greatly reduced. In many cases, especially when casts are applied, no sedation is required. In upper abdominal surgery muscle spasm is greatly reduced, and this, in turn, reduces the amount of opiates necessary. It is not uncommon for a patient to require less than a total of 1 to 1½ grains of morphine sulfate after gastric resection or cholecystectomy.

TABLE 5.—*Three Vasopressors Used*

No. of Cases		No. of Cc.	Reactions	Length of Time of Operative Analgesia, Hr.
1,688	Epinephrine	0.3	2	5-6
347	Phenylephrine	0.5	1	5-6
40	Suprarenin®	0.5	4	5-6
425	No vasopressor	...	..	5-6

We, as well as other workers, were impressed with the fact that the nervousness, excitement, and restlessness that often accompany procaine injections were noticeably absent when tetracaine was infiltrated.

There have been no palsies or areas of prolonged anesthesia. Five complications occurred other than the reactions later described. Three of these were pneumothoraxes and two were atelectases, but these could not be attributed to the tetracaine.

There were two reactions to epinephrine (adrenalin®) (1:1,000) in 1,788 cases. One reaction to 1% phenylephrine (neosynephrine®) occurred in 357 cases and four reactions to suprarenin® in 40 cases (table 5). This led to the suspension of use of suprarenin® early in the series. The one phenylephrine reaction occurred in a 44-year-old white woman who had a lumbar sympathetic block of 40 cc. of 0.25% tetracaine solution and 0.5 cc. of phenylephrine for thrombophlebitis. Before the procedure her blood pressure was 130 mm. systolic and 86 mm. diastolic, her pulse rate was 76, and her respiration rate was 18. She had received no premedication. Ten minutes following completion of the block she became nauseated and nervous, and felt that it was difficult to breathe. The blood pressure rose to 190 mm. systolic and 100 mm. diastolic, her pulse rate was 100, and her respiration rate was 30. In 30 min. she became quiet, and her blood pressure, pulse rate, and respiration rate approached the preanesthetic level. It could be argued justly that this was a mild tetracaine reaction, except for the subsequent course. The next day another lumbar sympathetic block was performed. The same amount and percentage of tetracaine was used, but the phenylephrine was omitted. The patient's course was uneventful during this therapeutic block. The two epinephrine and four suprarenin® reactions followed the same pattern as in this case.

TABLE 6.—*Percentage Comparisons*

Tetracaine, Per Cent	No. of Cases	Dosage Used				Reactions to Tetracaine		Reactions to Vasopressor	
		Max. Cc.	Max. Mg.	Aver. Cc.	Aver. Mg.	Min	Sev.	Min.	Sev.
0.1	180	250	250	150	150	0	0	0	0
0.15	738	110	165	85	125	9	3	0	4
0.20	126	100	200	60	125	0	0	0	0
0.25	914	100	250	50	125	0	1	0	3
0.3	162	40	120	40	100	0	0	0	0
0.4	19	30	120	30	120	0	0	0	0
0.5	61	40	200	10	50	0	1	0	0

In 2,500 cases there were 14 reactions to tetracaine; these reactions were classified as minimal or severe.

Minimal Reactions.—Seven cases characterized by drowsiness only occurred during superficial and deep cervical block for thyroidectomies. There was no change in the blood pressure or the pulse. In each of these blocks 90 cc. of 0.15% tetracaine solution with 0.3 cc. of 1% phenylephrine and 150 turbidity-reducing units of hyaluronidase was employed. No treatment was given, and the drowsiness passed in five to 20 min.

Two cases characterized by irregular heart rates corrected themselves without treatment in 10 min. One occurred after a brachial block and the other after a sciatic and femoral block. In these cases 90 cc. of a 0.15% tetracaine hydrochloride solution with 0.3 cc. of epinephrine (1:1,000) and 150 turbidity-reducing units of hyaluronidase was employed.

Severe Reactions CASE 1.—A well-developed and well-nourished white man had been hospitalized for tic douloureux, and a gasserian ganglion block was being executed. The needle was placed, and aspiration yielded no blood or spinal fluid. The open needle was then allowed to stay in place for one minute to be sure the dura or a blood sinus had not been entered. Two cubic centimeters of a 0.5% solution of tetracaine with 0.3 cc. of 1% phenylephrine was injected. The blood pressure was 130 mm. of mercury systolic and 70 mm. of mercury diastolic, the pulse rate was 80, and the respiration rate 18. Within one minute the patient began to feel dizzy and complained of being faint. He lost consciousness and had some twitching movements of his hands and feet but no generalized convulsion. The blood pressure rose, as did the pulse rate, and respirations became shallow and rapid. Cyanosis became more pronounced, and respirations ceased. At this point intubation was performed, and artificial respiration was instituted. The blood pressure had risen to 200 mm. of mercury systolic and 110 mm. of mercury diastolic, and the pulse rate was 130, but of fair quality. Artificial respiration was continued for 25 min. before the patient gradually took over his own respirations and regained consciousness. As soon as artificial respiration was instituted, the blood pressure and pulse rate gradually returned to normal. No barbiturate was used intravenously. Whether or not this was a subdural, intra-arterial, or intravenous injection is open to argument. The reaction was not due to a sensitivity to tetracaine or phenylephrine solutions, as previous and subsequent injections with tetracaine-phenylephrine solutions had been administered to this patient without reaction.

TABLE 7.—*Operative and Postoperative Analgesia*

Tetracaine Per Cent	Time for Analgesia to Establish, Min.	Duration of Operative Analgesia, Hr.	Postoperative Analgesia, Hr.
0.1	30-45	4½-6	4-9
0.15	30-45	5-6	4-9
0.20	30-45	5-6	4-9
0.25	20-30	5-6	4-9
0.3	15-25	5-6	4-9
0.4	10-15	5-6	4-9
0.5	10-15	5-6	4-9

CASE 2.—A 68-year-old white woman had been operated upon uneventfully for an acute gallbladder condition under intercostal deep splanchnic block employing 150 cc. of 0.1% tetracaine solution with 0.4 cc. of epinephrine (1:1,000) and 150 turbidity-reducing units of hyaluronidase. She was known to be a cardiac and had a grossly irregular pulse before operation. The first day postoperatively a right therapeutic intercostal block was administered, employing 50 cc. of 0.25% tetracaine solution with 0.2 cc. of epinephrine (1:1,000) and 150 turbidity-reducing units of hyaluronidase. Five minutes after the completion of the block she became irrational; her blood pressure dropped from 124 mm. of mercury systolic and 86 mm. of mercury diastolic to 86 mm. of mercury systolic and 42 mm. of mercury diastolic; her pulse rate was weak but retained the same irregularity as before the block, and she began to perspire and feel clammy. Apnea or convulsions did not occur. Oxygen was administered for 15 min., and the patient recovered. She left the hospital in the usual time.

CASE 3.—A 58-year-old white woman had an uneventful cholecystectomy under intercostal deep splanchnic block employing 150 cc. of 0.1% tetracaine solution with 0.4 cc. of epinephrine (1:1,000) and 150 turbidity-reducing units of hyaluronidase. Postoperatively she had two right therapeutic intercostal blocks, carried out uneventfully each time with 50 cc. of 0.25% tetracaine with 0.3 cc. of epinephrine (1:1,000) and 150 turbidity-reducing units of hyaluronidase. An elective subtotal thyroidectomy was scheduled, and the patient received a superficial and deep cervical block, employing 90 cc. of a 0.15% tetracaine solution with 0.3 cc. of 1% phenylephrine and 150 turbidity-reducing units of hyaluronidase. Ten minutes after completion of the block she became cyanotic and had a convulsion lasting 20 sec. Oxygen was administered under pressure, and she responded without further treatment. Surgery was performed, and her postoperative course was uneventful.

Case 4.—An 82-year-old white woman was to have a thyroidectomy for toxic adenoma under superficial and deep cervical block. The block was administered using 0.15% tetracaine solution with 0.3 cc. of 1% phenylephrine and 150 turbidity-reducing units of hyaluronidase. Five minutes after completion of the block respirations became shallow and ceased. Artificial respirations by oral airway and mask were performed. Her pulse rate increased from 92 to 120 but was of good quality. Her blood pressure rose from 150 mm. of mercury systolic and 90 mm. of mercury diastolic to 200 mm. of mercury systolic and 120 mm. of mercury diastolic. After five minutes of oxygen therapy shallow respirations resumed, and in 10 min. respirations were normal, and blood pressure and pulse rate had returned to the preanesthetic level. The operation was uneventful, as was the postoperative period.

Case 5.—A 55-year-old white man who previously had had a gastric resection for duodenal ulcer reentered the hospital complaining of pain and a dumping syndrome. He was deformed severely from arthritis, necessitating performance of the gastric resection with the patient in the sitting position. At that time he received endotracheally an anesthetic of nitrous oxide, oxygen, and ether. After this operation he received a bilateral therapeutic intercostal block, using 60 cc. of 0.2% tetracaine solution with 0.3 cc. of epinephrine (1:1,000) and 150 turbidity-reducing units of hyaluronidase. Immediately after the block his blood pressure fell from 90 mm. of mercury systolic and 50 mm. of mercury diastolic to 60 mm. of mercury systolic and 0 mm. of mercury diastolic, and he became cold and clammy but did not lose consciousness or become apneic. Oxygen was administered, and the patient's condition was satisfactory in 30 min. His recovery from the operation was uneventful. At this readmission the surgeon, feeling that a bilateral thoracic sympathetic block of the fifth through the 12th thoracic nerve segment would correct the dumping syndrome and ease pancreatic pain, requested our opinion. His first two requests were refused on the basis of the patient's severe arthritis with poor landmarks and his previous reactions to a block procedure. However, after the third request, the block was attempted, employing 90 cc. of a 0.15% tetracaine solution with 0.3 cc. of epinephrine (1:1,000) and 150 turbidity-reducing units of hyaluronidase. No sedation was given, but after severe pain occurred on the placing of the first two needles, 0.6% thiopental (pentothal®) sodium was given to the point of analgesia. At the completion of the block the patient ceased breathing. This was 30 min. after the block had been started. The patient's blood pressure was 110 mm. of mercury systolic and 70 mm. of mercury diastolic, his pulse rate was 76, and his respiration rate 18 at the beginning of the procedure. A quick check revealed no pressure or pulse. Oxygen was administered endotracheally, and other resuscitation drugs such as atropine and epinephrine were given intravenously. Cardiac massage was not attempted as the facilities and personnel were inadequate. The patient was pronounced dead one hour and fifteen minutes after the cessation of breathing. Postmortem revealed nothing. We feel this death was caused by faulty injection, probably subdural, although the pathologist could find no puncture of the dura. Of course, the possibility of a sensitivity to the local anesthetic solution must be considered. Nevertheless, I am reluctant to condemn the anesthetic solution in view of the patient's severe deformity.

It is interesting to note that when tetracaine solutions without hyaluronidase were employed, only one reaction was observed in spite of the relatively large amounts of tetracaine employed. Hyaluronidase, which is now considered the spreading factor by Duran-Reynals and McClean, was used in 1,000 of the above cases.[4] One would expect to see more reactions in these cases because the greater diffusion of the local anesthetic solution results in a greater absorption of the tetracaine. In the series of cases in which hyaluronidase was added, the same amount and concentration of tetracaine solutions were employed for the block in question as when hyaluronidase was omitted.

Reactions from tetracaine solutions per se, used for regional procedures other than subarachnoid block, epidural block, and topical analgesia, are infrequent, as shown by the recent available literature.[2]

The reactions which were observed during the series in which hyaluronidase was added gave us some insight as to the type of toxic reactions one might expect in the use of tetracaine, the blocks in which they are most likely to occur, and what treatment should be instituted. Nine of the reactions occurred during superficial and deep cervical blocks. This could well be anticipated because of the high vascularity of the neck with either rapid absorption or possible intravascular injection. The remaining five reactions occurred from injections in various regions of the body. All the reactions occurred usually five to 10 min. after the block was completed, which indicates that careful, not casual, observations should follow a tetracaine block for at least 15 min. The reactions were not heralded by restlessness, apprehension, and dizziness, which are often a warning when procaine is employed. On the contrary, these patients become drowsy; respirations were first shallow and then absent. In only one case were convulsions severe. In two of the severe reactions the blood pressure declined, and the pulse rate became rapid and weak. This would seem to indicate that tetracaine depresses cardiac activity, and perhaps in the presence of cardiac damage it is best avoided. On the other hand, patients who have had coronary occlusions and other heart insufficiencies, as shown by electrocardiogram, have tolerated tetracaine blocks without any difficulty. Also, because of this evidence of cardiac depression, perhaps intravenous or intracardiac administration of epinephrine may have been indicated in the case in which the patient died. However, to date we have not looked fondly upon its use. It would appear from the present toxic reactions that tetracaine tends to depress first the respiratory center and that deaths, when they occur, may be respiratory in nature. To date we have administered only oxygen to these patients by mask, maintaining a clear airway with an oral airway or an endotracheal tube. We have seen but one severe convulsion, and this stopped before a barbiturate could be started intravenously. However, had it continued, we

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4. Duran-Reynals, F.: Tissue Permeability and Spreading Factors in Infections: Contribution to *Host-Parasite Problem*, Bact. Rev. 6: 197, 1942. McClean, D.: Studies on Diffusing Factors: Methods of Assay of Hyaluronidase and Their Correlation with Skin Diffusing Activity, Biochem. J. 37: 169, 1943.

would have used small doses (50 to 100 mg.) of thiopental to control the convulsion. We have not used vasopressors to maintain a blood pressure, as the blood pressure has not fallen to a dangerous level, except in the case in which the patient died. We feel that this death was caused by a faulty injection, probably subdural, with a block of the cardiac accelerator fibers and cardiac arrest. Had cardiac massage been feasible in this case, it would have been attempted; however, by the time it could have been instituted the critical period of three to five minutes would have been exceeded.

SUMMARY

Tetracaine (pontocaine®) has many advantages for regional procedures and may be the answer to our search for a more satisfactory local agent. It has all the requirements listed by Labat for the ideal agent, with the exception of rapid onset of analgesia when very weak solutions are used. This disadvantage is easily offset by its prolonged anesthetic action. Tetracaine's retarded onset of analgesia is noticeable only in nerve block or field block analgesia, and, even then, this varies with the concentration of the solution and accuracy of placement. When tetracaine is used for intradermal and subcutaneous infiltration, almost instantaneous analgesia is produced.

This series of cases, as well as others reported, indicates that tetracaine in large amounts is a safe local anesthetic agent for nerve block or infiltration procedures. It also must be pointed out that in most cases every block in this series could have been performed adequately with approximately one-half of the tetracaine dosage employed. However, the large dosage was used to determine the safety of tetracaine.

Fourteen reactions to tetracaine occurred in 2,500 cases. Tetracaine reactions are not heralded by restlessness, nervousness, and dizziness. They are often unheralded and usually occur five to 15 min. after the completion of the block. They are characterized by drowsiness, shallow respirations, and apnea. Blood pressure and pulse rate usually do not vary. Careful observation of these patients, as required with any other anesthetic procedure, is essential. Reactions to tetracaine were combated with oxygen therapy only. However, if the blood pressure falls, it should be supported with vasoconstrictor agents, and only if convulsions are present and sustained or repeated should a barbiturate be administered intravenously. Should cardiac arrest occur, cardiac massage, if at all feasible, should be considered. There was one death which we feel was caused by faulty technique and poor selection, not to the drug in question.

Vasoconstrictor agents do not alter the anesthesia produced by tetracaine and may be omitted from the solution at any time. Reactions from vasoconstrictor agents are treated in the usual manner, i. e., oxygen therapy and reassurance of the patient and, if the blood pressure becomes alarmingly high, administration of sedatives, preferably 50 to 300 mg. of thiopental intravenously.

Tetracaine gives a minimum of five hours of anesthesia when used for nerve block and local infiltration.

Prolongation of therapeutic and diagnostic procedures is obviously of great importance and advantage; therefore, tetracaine may be the drug of choice for this work.

Postoperative analgesia lasts from four to nine hours. This is of utmost importance in reducing postoperative complications and instituting early ambulation.

There were no nerve palsies or areas of prolonged anesthesia in this series of cases.

CONCLUSIONS

The results of 2,500 regional analgesia procedures other than epidural or subarachnoid block are presented.

This series of cases shows that tetracaine is a safe, desirable, local anesthetic agent when it is used in dilute solutions which are effective in producing adequate analgesia.

Patients who have tetracaine reactions can be resuscitated.

Further study with tetracaine should be undertaken in order that a larger number of reports from various investigators may be available.

ABSTRACT OF DISCUSSION

On Papers by Drs. Adams, Pender and Pugh, and Moore

Dr. John J. Bonica, Tacoma, Wash.: The excellent results obtained in some patients who have excruciating pain due to malignancy, tic douloureux, pancreatitis, renal colic, causalgiac states, and many other disorders are very gratifying and often cause a great deal of enthusiasm on the part of both the referring practitioner and the regional anesthesiologist. It is important that these results do not cause us to become overenthusiastic, for unless we avoid the promiscuous use of diagnostic and therapeutic nerve blocks, we will become discouraged. It is important to realize the limitations inherent in this method and the great deal of time and patience entailed in its proper administration. One must be willing to devote much more time to these patients than the average clinician can afford, and perhaps the fact that the anesthesiologist is able and willing to spend this much time has been one of the most important reasons why his medical confreres have relinquished this function to him. It is most important, as Dr. Adams has emphasized, that the patients are carefully selected. If nerve blocking is the procedure of choice, it is important that all those concerned are made to realize that the earlier the block, the better the therapeutic results. In order to obtain optimum results in those patients who have been selected as suitable, the administrator must be thoroughly familiar with the present concepts of pain mechanisms and the anatomic, physiopathological, and psychological factors involved in the various disease conditions. One must be expertly familiar with the technic of selectively blocking the involved nerve pathways. Constant practice, which can be done on fresh cadavers just prior to or during postmortem examinations, and frequent use of regional procedures for surgical anesthesia will improve the dexterity of the regional anesthesiologist. Haphazard injection of nerves must be avoided or nerve blocking will be of little value. The results must be evaluated objectively by means of temperature and sudomotor studies, photographs, and x-rays. It is of the utmost importance that accurate detailed records are kept so that the results may be analyzed later, and conclusions derived therefrom. In the past five years two factors have contributed to better results in our cases. One has been the use of roentgenograms to aid in the proper placement of needles. Dr. Pender's and Dr. Pugh's timely paper expresses our views on this subject, and I hope it will stimulate those who have not availed themselves of this excellent aid to do so in the future. We have found x-rays of inestimable value in obtaining a clearer concept of nerve blocking and in teaching regional procedures to residents, particularly in blocks of the gasserian ganglion, of the divisions of the trigeminal nerve, and in blocks of the glossopharyngeal, vagus, and accessory cranial nerves. The other factor which has contributed in bettering our results has been the use of dilute solutions of tetracaine because its effects much longer blocks than procaine. To date we have employed and thoroughly investigated tetracaine in nearly 5,000 regional procedures other than spinal block and have arrived at the same conclusions as Dr. Moore has just presented.

Dr. J. W. Winter, San Antonio, Tex.: Diagnostic, prognostic and therapeutic blocks present a perplexing problem. A careful study of each patient before starting a block is essential. Overlooking metastic carcinoma, syphilis, or other degenerative diseases of the central nervous system, when they are the causative factor of pain, paresis, or circulatory disturbances, can be most embarrassing. Knowledge, experience, and diligent study, as well as careful technical execution of nerve blocks, will improve the number of satisfactory results. For best results treatment of intractable pain should be started as early as possible. Procrastination also tends to lead to loss of personality and addiction to narcotics, which reduces the chance of cure to almost zero. Alcohol should be reserved for blocking the trigeminal and sympathetic nerves and for intraspinal injection. Its use on peripheral nerves seems to be because of inexperience or the acquisition of some skill we do not possess. We find many cases in which pain has been alleviated with ammonium salts injected intraspinally or peripherally when it is of somatic nerve origin, but we cannot predict the chance of cure in a given case. Our results have improved since we have increased the concentration for peripheral nerves. Proper placing of the needles for any type of nerve block is necessary for success. Near hits frequently will be sufficient for successful analgesia if large quantities of local anesthetic agents are used. Direct hits are demanded for results when the use of smaller quantities is necessary, as indicated when an anesthetic agent is being used prognostically or for therapeutic alcohol blocks. X-ray is a poor substitute for knowledge and training in regional anesthesia. In fact, there are many blocks in which the unskilled and unsuspecting occasional regional anesthetist, falsely comforted by the assistance of x-ray, might cause disaster. If x-ray is used as a supplementary aid to blocks performed by a well-trained regional anesthetist, increased accuracy and better results can be expected. Frequently we desire longer-acting local anesthetic agents than procaine hydrochloride. It often wears off before maximum warming of an extremity occurs when it is used for sympathetic blocking in a room with controlled temperature, whether it be used on the ganglia or intraspinally. Tetracaine takes effect quickly enough to be used as a spinal agent, but it is rather slow as a regional agent. Therefore, for major surgery we usually use 1 Gm. of piperocaine (metycaine®) hydrochloride or procaine with 60 mg. of tetracaine added. Length of action is from three to five hours. For surgery lasting longer than three hours it seems logical to use tetracaine alone as the local anesthetic agent. Untoward reactions from tetracaine rarely occur, but when they do they last longer than those from procaine or piperocaine. It is advocated that every one using these agents in the office or hospital keep a short-acting barbiturate and oxygen nearby for possible resuscitation.

Dr. Richard H. Barrett, Hanover, N. H.: I am happy to hear Dr. Adams state that the anesthesiologist of today performs a great variety of functions in addition to clinical anesthesia. I will go further; the anesthesiologist of today is the *general practitioner* of specialized medicine. The reason we have been successful in a lot of this work is that we have taken time to listen to these patients' stories. Many patients have been diagnosed as being "neurotic." Anyone having a prolonged pain has good basis for his neurosis. One question asked frequently is, "How long will a block last?" The effect of a local anesthetic, even tetracaine, lasts not longer than five to, possibly, nine hours, and procaine lasts only three or four hours. The beneficial effect of block therapy is probably owing to its effect upon the sympathetic rather than on the somatic nervous system. If alcohol is used, it must be dehydrated ("absolute") and sterile (spores live in nonsterile alcohol). The use of roentgenograms in doing diagnostic and therapeutic blocks is ideal. There is a question of their necessity in connection with therapeutic blocks, per se, because of the expense involved in repeated procedures, and, as mentioned by Dr. Pender, many blocks can be evaluated adequately upon their therapeutic effect. Internists and surgeons should be educated to tell the patient that he may need a series of blocks, no just *a* block, especially after he has received innumerable x-ray and diathermy treatments and alcohol block is not contemplated. The rational for using x-rays for the proper placement of block needles is comparable with its use for the proper placement of pins in bone-nailing procedures. The use of alcohol in nerve blocks should be a *last* resort, or a substitute for refused surgery, never a *first* resort. The practice of putting alcohol in the sciatic nerve usually is contraindicated. Nine times out of ten so-called "sciatica" is a *symptom, not a disease*, and should be treated as such. The sympathetic nervous system is a dominant factor in pain; except for direct nerve trauma, ischemia, or localized hypoxia, it is probably the basis of most pain. Relieve the ischemia, and you relieve the pain. Nerve tissue dislikes ischemia. It makes this fact known via somatic or sympathetic nerves. We should attempt to reestablish the normal status quo, that is, normally functioning nervous tissue and—pardon the expression—avoid the use of anesthetic cosmetics, if we consider only the somatic system. Procaine has been beneficial through the years in blocking sympathetic nerves, allowing vascular release, counteracting ischemia and associated hypoxia, and allowing nervous tissue to function again normally. Only a few minutes or hours of anesthesia may be necessary to stop a vicious cycle. This can be done by repeated blocks. One problem sometimes encountered is that of a surgeon wanting to do an operation under local anesthesia because of the poor-risk patient, believing that even block anesthesia may cause more trauma. I have seen surgeons operate on a "poor-risk" under so-called infiltration anesthesia and use almost a bucketful of procaine, believing this is causing less trauma or less toxic effect to the patient than block anesthesia. It is almost akin to a procaine *bubble bath*.

Dr. John W. Pender, Rochester, Minn.: Dr. Lundy has suggested that I mention the technique which we have found useful in the injection of nerves with dehydrated ("absolute") alcohol. The technique has been termed "spot wetting," to rhyme with "spot welding" in other types of endeavor. If one intends to inject a nerve with, say, 2 cc. of dehydrated alcohol, the technique is to inject 0.5 cc. at a time, rather than the whole amount, waiting for intervals of one to two minutes between injections. That is an attempt to confine the area in which the alcohol exerts its effect to the smallest diameter. In this way one can block only the nerves that are intended to be blocked, and not have the alcohol spread to other nerves where it may produce undesirable effects.

Narcotic Effect of Morphine.—After a few minutes there is an undefined feeling of general comfort. The mental faculties are agreeably stimulated, the brain seems more active and without any sense of oppression. Fantastic lights and glimmerings appear before the eyes. There is a desire to remain undisturbed, the slightest attempt at movement is a trouble. Questions are only answered indefinitely; glimpses of indistinct, agreeable visions appear. All these pleasant feelings, however, are of short duration. The eyelids begin to droop, the individual who, in the previous enjoyment of comfortable respose, was disinclined to move his limbs is now unable to do so. Every impulse which emanates from the brain for that purpose passes off without effect. The whole body feels heavy like lead. This is the last thing noticed, and soon afterwards the individual sinks into a profound sleep.—K. Binz, M.D., Lectures on Pharmacology for Practitioners and Students, New Sydenham Society, London, vol. 1, 1895.

ROUTINE EXAMINATION OF THE OCULAR FUNDI AS AN AID IN MANAGEMENT OF TOXEMIAS OF PREGNANCY

Dan M. Gordon, M.D., New York

Since the retinal arterioles tend to mirror and parallel the arteriolar changes in other vital organs, routine ophthalmoscopy is essential in those pregnancies in which elevation of blood pressure or alterations in the renal and other studies indicate a possible deviation from the normal course of pregnancy.

A massive, and at times confusing, literature has arisen concerning the ocular findings in the toxemias of pregnancy; confusing because some authors have failed to differentiate between those changes in the ocular fundi that eventually occur in all patients with persistent hypertension and the ophthalmoscopic findings that occur purely by virtue of the existence of a toxic process in the course of pregnancy, with or without evidence of preceding cardiovascular-renal damage.

From an ophthalmoscopic point of view the patients with toxemia may be divided into two main groups: those with no evidence of prior vascular damage and those with such evidence. More simply stated, the question is one as to whether the pregnancy is complicated by hypertensive phenomena or whether the hypertension is in danger of becoming further complicated by the pregnancy.

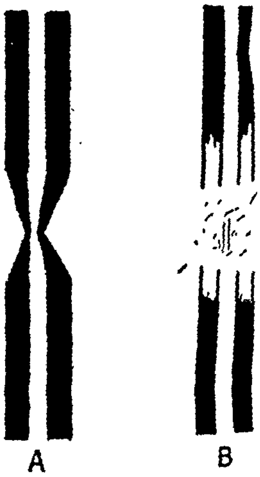
The first group may be subdivided into two subgroups: (1) women in whom the pregnancy has a toxic effect causing eyeground changes that may or may not recur with succeeding pregnancies and (2) women in whom a predisposition to cardiovascular-renal disease may be hypothesized and in whom the pregnancy acts as the mechanism that sets off a chain of events leading to permanent vascular damage.

In those women (the second group) who evince signs of an already impaired vascular system an apparently normal pregnancy may serve to increase the residual postpartum hypertension slightly or not at all; whereas the intervention of a toxemia may increase the hypertensive state, as determined by postpartum examinations.

RETINAL CHANGES SEEN DURING TOXEMIA

The first sign of impending circulatory difficulty, seen in the retina of the toxemic patient, is a narrowing of some or all the arteries. Normally, the nasal arteries are narrower than the temporal, and hence such a narrowing may first be seen on the nasal side of the disk. In the healthy eye the caliber of the arteries as compared with the accompanying veins is as 2:3. During the stage of narrowing this ratio may become 2:4 or even 1:4. In determining this ratio it is important to compare the artery with its accompanying vein at the same level. This is best done by observing the temporal vessels, close to the disk, before either the artery or the vein has bifurcated. For practical purposes the arteries in the retina may be considered as arterioles.

With the continuation of the toxemia a second stage, marked by localized spasms in one or more sites in one or more arterioles, is seen. These usually occur in the temporal arteries and usually fairly close to the disk. The affected vessel looks as though it has been pinched in one or more places. The spasm may be transient and may change sites frequently. The retina at the site of the spasm may be grayish or whitish or may look "wet." It is my feeling that prognostically this type of spasm, with accompanying local retinal changes, is worse than that that has no such changes. Some authors feel that the spasms may occur simultaneously with the onset of the vessel narrowings. It is true that one occasionally sees the spasms without any significantly appreciable narrowing of an accompanying vessel. In my experience this is as significant as spasm plus narrowing.



Purely schematic drawing of spasm, as seen ophthalmoscopically. *A* indicates a "pinched" artery; *B*, an appearance seen frequently, in which the "spastic" portion of the artery is practically invisible, with some edema at the site of the spasm.

If termination of the pregnancy takes place during the foregoing stages, permanent vascular damage is not apt to occur. Wagener[1] states that "as long as the lesions in the arterioles are definitely spastic [and not organic] if the condition of the patient is otherwise satisfactory it is safe to temporize." That statement does not completely coincide with an experience at the Lying-In Hospital (a unit of the New York Hospital), since my colleagues and I have seen at least one patient whose ocular fundi showed only generalized narrowing of the arterioles (without any localized spasms), and who lost her baby six weeks before term and two days before delivery. This patient's second pregnancy was uneventful, except for a blood pressure of 140/90. A cesarean section was safely performed about one week before term. It is quite probable that she would have had an uneventful delivery had she been permitted to go to term. We have seen fetal death occur during the stage of spasm without any evidence of progression of the retinal changes to the later stage of retinopathy (hemorrhages and/or transudates). The following cases are illustrative.

REPORT OF CASES

CASE 1.—M. L., aged 35, entered the Lying-In Hospital, a unit of the New York Hospital, on Oct. 16, 1946 in the twenty-eighth week of pregnancy. Her blood pressure was 140/90. Her eyegrounds were examined on October 17 and were reported as essentially normal fundi with the exception of some widening of the arterial "reflex stripes." On October 20 some narrowing of the peripheral vessels was noted. Her blood pressure was never re-

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From the New York Hospital, Cornell University Medical College.

[1] Wagener, H. P.: Retinitis of Malignant Hyptertension, Tr. Am. Ophth. Soc. **21:** 348, 1927; Arterioles of the Retina in Toxemias of Pregnancy, J. A. M. A. **101:** 1380 (Oct. 28) 1933; Lesions of the Optic Nerve and Retina in Pregnancy, ibid. **103:** 1910 (Dec. 22) 1934.

corded as being over 148/110. The only significant finding in her general condition was a failure of the blood pressure to respond to bed rest and sedation. The fetal heart sounds were lost on November 4 and a stillborn infant delivered spontaneously on November 8. Two days later the patient's ocular fundi appeared normal.

She was readmitted March 16, 1948 about one week before term, with a blood pressure of 140/100. At that time her fundi exhibited slight widening of the arterial reflex stripes with no evidence of narrowing or spasm. Because of her age and prior experience it was deemed advisable to perform a cesarean section. This was done and a living 3,470 Gm. child delivered.

Case 2.—M. S. was seen in the Lying-In Hospital in 1946, when she had a 4½ month spontaneous abortion. At that time her blood pressure was 150/110. She was seen again in October 1947 with a history of having had her last menstrual period in July. She continued to be seen in the outpatient department, where she had a borderline blood pressure until Feb. 28, 1948, when her pressure was recorded at 170/110, which, it was felt, warranted admission to the hospital. It was thought that her fetus weighed in the neighborhood of 1,200 Gm.

She was seen by several members of the eye department of the New York Hospital on March 5, when her arterioles were found to be narrowed, with several areas of spasm in the temporal arteries. The arteriovenous ratio was 1: 2, and the arteries were thin and transparent in appearance. On March 15 it was felt that the generalized narrowing of the arteries had increased. The next day we felt that the spasm was decreasing in intensity and stated that we felt this to be a poor sign prognostically. On March 24 the fetal heart sounds were not heard. However, they were heard again on the next day and continued to be heard until March 28, when the sounds were lost. On March 30 we reported again that the arteries were more dilated with but slight residual local areas of spasm and again sounded a note of alarm over the prognosis for a live baby. On April 1 M. S. went into labor and was delivered of a macerated fetus, which was thought to have been dead for several days and which weighed 1,330 Gm. The patient's blood pressure had been recorded constantly around 140/90 with but one two-day rise to 160/110.

This patient was the subject of many interesting discussions during the course of her pregnancy. While most of the observers expressed the opinion that interference was indicated, all agreed that the fetus was so small as to have rendered survival questionable. The determining factor here was the apparent lack of size of the fetus. As it turned out, interference would have given the fetus more opportunity than did "watchful waiting."

Occasionally one sees patients in whom the narrowed or spastic arteries begin to show evidence of relaxation and return to normal caliber. It is our feeling that this is a prognostic sign of fetal death or impending fetal death. In such cases, if a fetal heart sound can still be obtained, immediate interference must be considered. While one cannot make hard and fast statements about interference under these conditions, it is my opinion that if there is a probability of securing a viable child at this stage our experience would indicate that such interference must be given serious consideration.

If the termination of pregnancy does not take place during the stages of narrowing and spasm, a third stage of vascular sclerosis ensues. This marks the beginning of permanent organic changes in the vascular system. It is not always possible to state just when this transition to an organic phase ensues or how long the period of narrowing and spasm can continue before sclerosis may be assumed to be present as a permanent change. It is my opinion, based on observations of many patients before and after sympathectomy for hypertension, that ideas of what constitutes "permanent changes" in blood vessels will undergo considerable revision in the years to come.

While this statement is undoubtedly correct, it is of little aid to the clinician who has an immediate decision to make in the desire to secure a live baby without at the same time permitting permanent vascular damage to occur to the mother. He would like to have some reliable sign to guide him in forming this decision, especially if he is dealing with a small fetus and desires to ascertain how much longer he can safely wait. It is obvious that in the present state of knowledge there is available no such definite sign to give him.

In case 1 evidence of minimal arteriosclerosis was seen when the patient was admitted for her second pregnancy, although her vascular condition had never gone beyond the stage of generalized narrowing when seen during her first admission. Whether she had had preexisting minimal vascular damage prior to her first pregnancy is not known.

With continued pregnancy and narrowing and spasm the retina begins to show signs of ischemia with edema. This is first seen as grayish or fluffy areas streaming away from the disk along the course of the major vessels. This is followed by hemorrhages and transudates, forming the complete picture of the toxemic retinopathy of pregnancy. A complete or incomplete star-shaped figure may be seen in the macula during this stage. It is possible that in an already hypertensive patient such a picture may occur without the preliminary stages having been seen. All writers on the subject agree that this picture signifies permanent vascular damage and, of course, indicates a need for immediate termination of the pregnancy. The object of all treatment is to prevent the patient from reaching this advanced stage of retinopathy. Some patients, if pregnancy is terminated early in this stage, may still be delivered of live babies. In this connection the following case is interesting.

Case 3.—L. D., aged 29, was admitted to the Lying-In Hospital on May 31, 1946 with a severe preeclampsia beginning in her thirty-third week of pregnancy. Her blood pressure during her first two to three months of pregnancy was 120/80 with neither albuminuria nor other significant physical or urinary findings. Two weeks prior to admission she had had a slight amount of bright red vaginal bleeding. She had had frontal headaches and spots before her eyes for two to three days prior to admission. On admission her blood pressure was 185/120. I examined her on June 4. At that time her pupils were undilated. I reported edema of the retinas, dilatation of the veins, with full arteries and arteriovenous compressions. However, since the examination was unsatisfactory, dilation of the pupils was ordered, and the patient was reexamined on the following day. The examination disclosed blurring of the nasal disk margins, edema of the retinas, areas of spasm in some of the arteries but with no narrowing otherwise, some small deep hemorrhages and soft woolly transudates in the right macular area.

This patient had large myomas of the uterus that made it impossible to hear the fetal heart sounds. As a result of the serious ocular findings it was decided to perform a cesarean section immediately. This was done and a live 1,750 Gm. baby delivered.

I agree with Gibson [2] that there is a lack of parallelism between the degree of toxemia and the occurrence of a retinopathy.

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[2] Gibson, G. G.: The Clinical Significance of the Retinal Changes in the Hypertensive Toxemias of Pregnancy, Am. J. Ophth. 21: 22, 1938.

Wagger, Schiotz,[3] Hallum[4] and Masters[5] have all indicated that if a retinopathy (stage of soft transudates, hemorrhages and edema) occurs prior to the twenty-eighth week of pregnancy there is only a 25 per cent chance of a live baby being born, even if the pregnancy is continued to the stage of viability, and an almost 100 per cent chance of permanent circulatory damage to the mother.

In rare cases a detachment of the retina, either unilateral or bilateral, may occur as a result of the significant intraocular edema which may be present. Here again most authors are in agreement that such an incident is an indication for immediate termination of the pregnancy. After termination spontaneous reattachment of the retinas nearly always occurs.

I find it impossible to agree with Cheney's[6] conclusion that the arterial narrowing is due to the hypertension per se and not to the presence of an acute toxemia or nephritis. We have seen too many patients with hypertension in whom such narrowing was not observed and whose pregnancies were not complicated by the eyeground findings observed in the toxemias and who have thus gone through to term uneventfully. Where prior hypertension has been present and has resulted in changes in the ocular fundi one can usually note such evidences (widening of the arterial light reflexes, compression of the veins or deflection of the veins at the arteriovenous crossings and others) unless a severe narrowing of all the vessels has taken place as a result of the toxemia, making it difficult to study individual vessel detail. I am in agreement with Hallum when he states that during the stage of narrowing the arterial light reflex loses its brightness. During this stage it is difficult to estimate the prior width of the arterial light reflex.

Mussey[7] feels that there is a definite increase in the amount and severity of the eyeground changes which is proportional to the height and duration of the hypertension. In my experience this change has not always been directly proportional to the height of the blood pressure. I have found severe spasm with a systolic blood pressure in the region of 140 to 160 and the diastolic in the neighborhood of 90. Alteration in the diastolic pressure is seemingly more important than in the more labile systolic. In at least one case I have observed an increase in a spasm that occurred in but one site in but one vessel while the blood pressure was dropping. In this case the drop in pressure was followed by a sudden severe rise; a cesarean section was immediately performed and a live baby secured. On the other hand, I have observed many patients with severer hypertension who exhibited practically no notable changes in the eyegrounds, and those patients have safely gone through their pregnancies.

OTHER OCULAR COMPLICATIONS OF PREGNANCY

Although the object of this paper is the discussion of the ocular findings in the toxemias, it might be well to mention briefly the other ocular complications occasionally found during pregnancy.

Many such complications have been reported, especially embolic or thrombotic occlusions of the branches of the central artery of the retina, vitreous hemorrhages, acute inflammations of the choroid and retina, inflammations of the cornea, uveitis, extraocular and intraocular muscle palsies, intraocular and retrobulbar neuritis, retinal detachments and amaurosis.[8] Night blindness, which has responded to therapy, has been reported in malnourished pregnant women. I have recently seen occlusion of the cilioretinal artery to the macula in one pregnant woman and a chickenpox vesicle on the cornea in another. When optic neuritis is seen, it is usually terminal. One of Schiotz' two patients with retrobulbar neuritis died, as did two of the three patients seen by Tillman.[9] Stander[10] felt that hemorrhage in the retina occurring during pernicious vomiting of pregnancy was an absolute indication for termination. I have seen one case, as has Stander, of a retinal hemorrhage occurring in a woman with severe vomiting without any other evidence of toxicity. Her vomiting ceased, the hemorrhage disappeared, and her pregnancy continued uneventfully. Such a case must be differentiated from one of pernicious vomiting.

COMMENT

All the carefully done eyeground studies in the toxemias of pregnancy indicate that such competent studies, repeated as often as necessary, serve as a great aid in the management of these cases. Occasionally the decision as to interference must be made after but one or two observations. Usually a longer period of observation is necessary and possible. Since the obstetrician usually sees his patients early in their pregnancy or even prior to conception, a study of the ocular fundi at the first visit will often give him information that may later aid him in determining whether the hypertensive changes are complicating the pregnancy or being complicated by it. It is not the province of this paper to teach ophthalmoscopy; but it is important to point out that when possible the examinations should be done after the pupils have been dilated. This can easily be done with either 2.5 per cent neo-synephrine hydrochloride or 3 per cent paredrine hydrobromide ophthalmic solution without inconveniencing the patient. It is important to carefully follow out all the four major branches of the vessels. Fresh batteries and bulbs should be used, since important pathological conditions can easily be overlooked with a poor light.

Since various patients react differently during their toxemias, with a few carrying live babies through in spite of fairly severe eye changes while others lose their babies during the stage of narrowing, it would seem advisable to consider interruption of the pregnancy as soon as pertinent eyeground changes are seen and verified by a competent observer if the fetus is viable. Watchful waiting in these cases too often may mean watching and waiting while the fetus dies, and the mother may be simultaneously acquiring permanent vascular damage. Obvi-

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3. Schiotz, I.: Detachment of the Retina During Pregnancy, Norsk mag. f. laegevidensk. **80**: 321, 1919.
4. Hallum, A. J.: Eye Changes in Hypertensive Toxemias of Pregnancy, J. A. M. A. **106**: 1649 (May 9) 1936.
5. Masters, R. J.: Routine Ophthalmoscopic Examinations as an Aid in the Management of Maternity Cases, Tr. Am. Ophth. Soc. **31**: 417, 1933.
6. Cheney, C. O.: Indications for Therapeutic Abortion, J. A. M. A. **103**: 1914 (Dec. 22) 1934.
7. Mussey, R. D., and Keith, N. M.: Significance of Nephritis of Pregnancy, J. A. M. A. **91**: 2044 (Dec. 29) 1928.
8. Schultz, J. F., and O'Brien, O. S.: Retinal Changes in the Hypertensive Toxemias of Pregnancy, Am. J. Ophth. **31**: 767, 1936.
9. Tillman, A. J. B.: Two Fatal Cases of Hyperemesis Gravidarum with Retinal Hemorrhages, Am. J. Obst. & Gynec. **27**: 240, 1934.
10. Stander, H. J.: Personal communication to the author.

ously, each case must be considered individually, and no hard and fast rules can be made. However, it is my feeling that in those cases in which the fetus is viable and the eyeground signs clearly show evidence of toxemia little is to be gained by waiting, and the price of too prolonged waiting may be unusually high. Fetal death, when it does occur, is so sudden as to render twelfth hour interference impossible. When it would seem that another week or two is necessary to secure a fair chance of fetal viability, the decision obviously is dependent on all the various factors concerned in the individual case.

HYPOGLYCEMIC REACTIONS TO INSULIN

Samuel Benjamin, M.D., Washington, D. C.

Hypoglycemia may be brought about by several conditions, among which are various glandular conditions. There is hyperinsulinism as a result of islet cell tumor of the pancreas, the hypoglycemia due to Simmonds' disease of the pituitary, and hypoglycemia due to myxedematous condition of the thyroid. In addition, we have the hypoglycemia due to liver dysfunction, and the functional hypoglycemia which is considered to be on an emotional basis.

However we shall not consider these hypoglycemias here. We shall concern ourselves only with the so-called hypoglycemic reactions produced by the giving of exogenous insulin in the treatment of diabetes mellitus.

In all the previous mentioned hypoglycemias we start with a normal or below-normal fasting blood sugar. The glucose tolerance curve is either flat or below normal with one exception—the glucose tolerance curve of liver dysfunction. In that condition the curve bears a resemblance to a diabetic curve in certain features, but the fasting blood sugar is usually normal.

If we start with a normal or slightly elevated blood sugar we can see that a sudden drop need not be very severe to result in a low blood sugar level. The assumption is that the reaction itself is due to the lowness of the blood sugar level.

Now if one considers the blood sugar levels in a diabetic under insulin treatment, the conditions are not quite the same. The postprandial blood sugar levels are usually high and frequently there is nocturnal elevation, although under these conditions the fasting blood sugars may be normal. Under these conditions diabetics can and do have sudden marked drops in blood sugar levels without necessarily reaching hypoglycemic levels. In the presence of these circumstances there are insulin reactions.

It is interesting to note that in an article published by Wauchope, entitled "Hypoglycemia, a Critical Review,"[1] he reports a case from Payne and Poulton of a diabetic 46 years of age in whom a fall from a 0.320 to a 0.280 mg. blood sugar level regularly produced symptoms. He also reports a case from Harrison in which the patient exhibited no symptoms despite a fall of blood sugar level from 0.328 to 0.053 mg. in five hours. Harrison made 28 estimations of blood sugar levels on 11 children under 12 years of age. Despite the fact that the levels were less than 0.050 mg., the lowest being 0.028 mg., there were no symptoms of insulin reactions.

Rice has observed one diabetic with a blood sugar too low to be read, walking around. I have observed a similar patient. Both patients were juvenile diabetics.

From various observations and reports, it seems that insulin reactions are based not on low blood sugar levels but rather on rapidity of drop, although in a good many cases there may be both.

It is vital that these facts be universally known in order to facilitate prompt and accurate recognition of insulin reactions. One must not be misled by the higher blood sugar levels. I believe, in view of the above facts, that we would be more nearly correct in discarding the terminology of hypoglycemic reaction as applied to the diabetic and substituting the terminology of insulin reaction, insulin shock, and insulin coma.

If we delete the term hypoglycemia, we are not so likely to be misled in cases in insulin reaction when the blood sugar is not at a hypoglycemic level. It is true that the chances of high blood sugar in insulin coma are small. However in overlooking an insulin reaction with a relatively high blood sugar, one may put the patient into insulin coma by the giving of insulin instead of glucose.

Let us consider the urinary findings in insulin reaction as an aid in diagnosis. We have been accustomed to believe that the urine should be negative for sugar and acetone in insulin reactions. When this is so, these findings aid in the diagnosis. However, we should not rely on them alone, for it is possible to have insulin reaction not only in the presence of glycosuria but also in the presence of acetone. This is true particularly in the transitional state when a patient is being treated for diabetic acidosis or coma.

We shall now consider the diagnosis, symptoms and treatment of insulin reactions. Most important is the early recognition of the reaction. Sudden onset is usually characteristic. Symptoms vary greatly. The so-called classic symptoms are sweating, hunger, internal tremor (subjective), external tremor, weakness, and nervousness. Some of the nonclassic symptoms are diplopia, blurred vision, headache, parasthesias, motor aphasia, muscular twitchings, anginoid attacks, nausea and vomiting (protamine zinc insulin), and bizarre psychic phenomena.

Symptoms not only vary greatly in different patients but also vary greatly in the same patient. The following cases are illustrative.

Case 1.—Mrs. E. McD., aged 28 years, has been a known diabetic for two years. At various times, her insulin reactions have caused hysteria and screaming—a feeling that she was los-

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Delivered at the Third Annual Clinical Session of the American Medical Association, Washington, D. C., Dec. 7, 1949.

[1] Wauchope, G. M.: Hypoglycemia, a Critical Review, Quart. J. Med. 27: 117 (Jan.) 1933.

ing her mind (this was while she was taking regular insulin). Since she has been taking protamine zinc insulin, her reactions have simulated intoxication with staggering. The patient spilt a quart of milk on the floor and spent an entire afternoon mopping it up with a potholder. At another time she had no symptoms of reaction except to attempt opening a door by using a match in the keyhole. On occasion she has no warning but becomes unconscious. Her reactions at present occur during sleep. There are no sweaty reactions during the day, but they do occur at night. She has no memory of these symptoms at any time after the reactions.

Case 2.—Mrs. D. S., aged 25, has had diabetes for 20 years. This patient's description of her varied reactions is most graphic.

"On several different occasions I have been sitting in the office typing, and, for no reason at all, my teeth would start to chatter, and would soon sound like rapid machine-gun fire. After drinking some orange juice, they would stop. However, when this happened the first time I had to call the doctor before I would take any orange juice. Now, I know better.

"While watching the feature of a movie, I would suddenly find myself seeing twice as many characters on the screen as there should be, and on closing one eye, I would see the correct number. At times like this I generally sit with one eye closed for several minutes, until it becomes tiresome, and I then realize that I should eat some sugar, and do so. Seeing double would be the only symptom I would have on such occasions.

"Under ordinary circumstances I know that I am a very stubborn person, but under the influence of insulin I know that I can be twice as stubborn. At such times I will refuse to drink orange juice, and when someone brings it to me, I just look at it, clench my teeth and shake my head. However, after a lot of coaxing and a certain amount of firmness, I will finally drink it down and then probably ask for more. I don't know whether I distrust the person who is trying to help me, or whether I don't believe it is orange juice, or what—but I do know that I stubbornly refuse to drink it. . . .

"A frozen, tingling sensation around my nose, mouth and tongue happens to me quite frequently. It is a feeling such as you get when the dentist gives you novocaine before working on a tooth. I have also had my whole hand stay numb for days on end, and yet I would not think I had a reaction. This sort of sensation always lasts for quite a while after I get over the reaction.

"One of my most recent reactions was, I think, the most peculiar. It happened one Saturday afternoon just a short time after I had finished lunch. I was sitting in the living room reading, and suddenly started to feel light-headed. I stopped reading and continued to sit where I was, but I seemed to get more light-headed by the second. Not knowing what was wrong, and again not thinking of an insulin reaction, I stood up, thinking I would go to my room and lie down, but I couldn't take more than a couple of steps, for I just seemed to fall apart. And I fell completely apart! My legs I was sure were about two feet out in front of me, my head was dancing somewhere above me, and when I reached out to grab the wall, my arms being off, they were of no use whatsoever either, so I yelled for help, and my roommate caught me just as I was slipping down the wall. Somehow or other, she managed to get me to my room and onto the bed. She then called the doctor and told him that I said I was falling apart. By this time I was crying desperately and repeating over and over again that I was falling apart. The doctor ordered orange juice, and after two glasses of it, I gradually collected my scattered wits and limbs, and upon checking, found that my arms, legs and head were all attached and exactly where they should be. The best way I can think of to illustrate this feeling is by mentioning a skeleton, of which I am sure almost everyone has seen cartoons, where it dances in a very grotesque fashion—usually to the tune of 'The Dance Macabre'—wherein it rattles around and all the bones fall apart, and then it becomes completely disjointed and then comes together again. That is exactly how I felt, for with my head bouncing around in the air, I just couldn't control my arms and legs."

The blood sugar level may be low, normal or high. The urine may be negative for sugar or may have glucose or even acetone. If we remember all these facts and that symptoms are very variable, that the classic symptoms may be absent, and that sweating which is considered one of the most constant symptoms, may be entirely absent, many insulin reactions will not be overlooked. In addition, we must never forget that insulin reactions enter into the psychic realm and may be manifested by a psychic disturbance ranging from hysteria to mania.

If we follow the rule, "In known diabetics under treatment with insulin, any psychological deviation may be an insulin reaction," and institute treatment, we will avoid many accidents and tragedies.

The clinical knowledge of insulin reactions in general and the specific knowledge of a patient's reactions to insulin are the best criteria for the diagnosis of insulin reactions. If the laboratory findings fit in, accept them; otherwise reject them.

It should be remembered that giving glucose will do no great harm in an impending acidosis, but that giving insulin to a patient in insulin reaction may mean permanent brain damage and/or death.

In the treatment of insulin reactions, the promptness of treatment determines the degree of recovery. Sugar or fruit juice should be administered as soon as the reaction is recognized. Do not delay; coma may develop rapidly. During the precoma state, the patient may become refractory to taking anything by mouth after a wait of only a few minutes. This is part of the insulin reaction. When the patient is taking a slow-acting insulin, bread and milk should be given after the fruit juice. The carbohydrates of the latter are not so quickly absorbed. Intravenous administration of dextrose may be necessary in addition to oral ingestion of sugars, as patients often do not respond as quickly to orally ingested sugars alone. The effects of prolonged hypoglycemia on the brain are not always relieved by bringing the blood sugar level back to normal or above. In my own experience I recall a patient who lost his ability to articulate during an insulin reaction. In spite of the fact that his blood sugar level was permitted to rise to 0.387 mg., this sign lasted for five days.

SUMMARY

Hypoglycemia is a misleading term for the abnormal reaction of a diabetic to insulin. It is recommended that this term be replaced by insulin reaction, insulin shock, and insulin coma. The principal criterion for diagnosis of these conditions should be clinical observation based on a good knowledge of insulin reactions in general and a specific knowledge of the reactions of the individual patient, plus the laboratory findings only if they fit into the picture.

Glucose given in impending acidosis or coma can do little harm compared to the inestimable damage that may result from giving insulin in insulin reactions. When in doubt, always give glucose.

Farragut Medical Building.

The Medical Triangle.—The three sides of the medical triangle are made up of the doctor, the patient and the disease. Success in the medical profession is largely dependent upon the relation of these three sides. One of the dangers of modern institutional medicine is the over-emphasis of the positive facts concerning the disease, to the exclusion of the human sufferer and the suppression of the interaction between the personalities of the doctor and the patient. In some kinds of private practice the reverse may be the case.—*British Journal of Physical Medicine*, January, 1951, page 15.

CLINICAL NOTES

ALKAPTONURIA

Carl L. Mauser, M.D., Oakland, Calif.

Alkaptonuria is a rare disease of very little clinical importance except that it may be confused with other conditions, particularly glycosuria of diabetes mellitus. The etiological factor is apparently due to an inborn error in protein metabolism resulting in the excretion of homogentisic acid in the urine. The two amino acids which have been incriminated as the source of abnormal metabolism are tyrosine and phenylalanine. These two amino acids are the source of homogentisic acid. The clinical manifestations of alkaptonuria were first described by Marcet[1] in 1823. However, the nature of the reducing material in the urine was first recognized by Marshall.[2] The condition is thought to be hereditary; however, this is not always proved. The patient with alkaptonuria usually has no clinical manifestations unless he has pigmentation of the cartilages, then called ochronosis. The condition is felt to be completely benign. The urine on standing becomes alkaline and gradually turns brown to black with oxidation of the homogentisic acids. Homogentisic acid itself reduces alkaline solutions such as Benedict's or Fehling's and may thus be mistaken for glycosuria. It does not, however, reduce an alkaline bismuth solution, such as Nylander's reagent. Homogentisic acid forms a black precipitate when 10% sodium hydroxide solution is added to urine containing it. Other tests which may be of benefit are that homogentisic acid does not ferment yeast, and it does not rotate polarized glucose, but with the addition of dilute ferric chloride solution a transitory deep blue color is formed until oxidation is complete.

Another simple test for the presence of homogentisic acid depends upon the relationship of hydroquinone. A drop of urine which has been made alkaline is placed on sensitized photographic paper; the paper immediately becomes black. This color change does not occur with normal urine constituents.

SYMPTOMATOLOGY

There is a triad of symptoms which sometimes are recognized: (1) pigmentation of the scleras and ears; (2) dark color of the urine; (3) arthritis.

The pigmentation lies in the fibrocartilagenous structures, the scleras, the center external cartilages, the tendons, and the skin. In a good many cases, the scleras take on a diffuse gray color and frequently a semilunar or V-shaped patch of pigmentation occurs in both scleras. Sometimes this pigmentation acquires the size of a bean and is situated midway between the margin of the cornea on the outer or inner canthus. This color may vary from deep brown to black.

The pigmentation of the cartilages and fibrous tissues is visible only in certain locations, the most characteristic of which is the ear. The skin of the face may be involved and often is described as a coffee-colored pigmentation. In other cases there is a uniform yellow-brown color with intensification over the cheeks. In some cases the color of the skin has been described as "pure melanosis, just as if a patch of the blackest Negro skin had been inserted."

Arthritis, usually of a hypertrophic type, is very frequent in alkaptonuria. The bony changes may be indistinguishable from those of osteomalacia, except for the absence of pigments in the latter disease. Alkaptonuria, or ochronosis, usually runs a chronic course over many years and terminates usually with some affection of the arterial system. However, prognosis is good for life expectancy. Treatment is usually one of prophylaxis, such as the avoiding of prolonged use of phenol preparations. Being either a congenital or a familial disease, alkaptonuria can be prevented only by forbidding intermarriage in affected families.

REPORT OF A CASE

The patient was a white boy aged 8 years, first seen Feb. 14, 1950, after a physician in a neighboring city had found that the child had sugar in his urine. It is of some interest to know that three years prior the youngster was treated for diabetes mellitus for a period of several months. Why treatment was discontinued is not known. Reactions of the urine to Benedict's solution apparently were all black, but no blood sugar determinations were made at that time. On the day prior to my seeing the youngster for the first time, he was taken to a physician because of a cold and a urinalysis revealed a reaction to Benedict's solution. He had no symptoms referable to diabetes. There was no polyuria, polydypsia, or polyphagia. He had lost no weight and had no thirst; there was no blurring of vision; his skin texture was normal, and he healed normally. There was no known history of diabetes on either the maternal or the paternal side of the family. The child gave a history of frequent head and chest colds throughout the year which were usually quite prolonged. A review by systems otherwise was essentially noncontributory.

Physical examination.—The patient was a rather dusky-complexioned, white boy of 8 years who was well nourished. He weighed 69 lb. (31.3 kg.). The pupils of the eyes were regular and equal and reacted to light. The scleras and conjunctivas were slightly injected. The disks of the fundi were sharp; the vessels were normal; there were no infiltrations or hemorrhages elicited. The mucous membranes of the nose were pale and boggy; ventilation was limited bilaterally, and there was a good deal of discharge posteriorly. The teeth were in good repair and were normal for the child's age. There were no caries. The posterior pharynx was clear, and the tonsils had been extirpated. The tympanitic membranes were normal but slightly retracted. There was no adenopathy in the neck. The chest was symmetrical, resonant and well clothed. The lungs were clear to percussion and auscultation. The left border of the heart was in the midclavicular line in the fifth left interspace. The pulse rate was 88. There were no murmurs or thrills elicited. His reflexes were physiological. The abdomen was soft and scaphoid. There were no palpable abnormal masses or viscera, and tenderness was not elicited. The genitals were normal; the testicles were both in the scrotum. The axillas were normal.

Laboratory studies revealed the following values:

2/14/50.—Blood sugar (micro method), 117 mg./100 cc.
2/15/50.—Glucose tolerance (micro method):
    Fasting 98 mg./100 cc.; urine, dark green
    30 min. 170 mg./100 cc.; urine, dark green
    60 min. 158 mg./100 cc.; urine, dark green
    2 hr. 128 mg./100 cc.; urine, dark green
    3 hr. 116 mg./100 cc.; urine, dark green
2/17/50.—Blood sugar (micro method), 103 mg./100 cc.
3/ 4/50.—Blood sugar (micro method), 127 mg./100 cc.
    Urine turned black on standing.

He was tested for homogentisic acid in his urine, with both the 10 per cent ferric chloride test and the 10 per cent sodium hydroxide test eliciting positive reactions.

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[1] Marcet, A.: Tr. Med.-Chir. Soc. Edinburgh **12**: 37-45, 1822-1823.

[2] Marshall, J.: M. News **50**: 35, 1887.

The youngster was given skin tests with all the important foods and inhalants and gave reactions to many inhalants which were indigenous to his environment, which undoubtedly had a good deal to do with his frequent colds.

This case has been reported because of its academic interest and its severity. This child did not manifest the articular reactions frequently seen in this condition but did manifest the urinary and pigment changes in the skin. He had been treated for diabetes mellitus and it can be seen that it is possible to confuse these two conditions. When diabetes mellitus is suspected, certainly a blood sugar determination should be done. As the prognosis is good for normal span of life, no treatment is indicated.

400 Twenty-Ninth Street.

NONTHROMBOCYTOPENIC PURPURA CAUSED BY MENTHOLATED CIGARETTES

Benjamin Highstein, M.D.
and
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Menthol is a very useful and nontoxic drug prescribed mainly for its analgesic properties. It is used frequently for dermatoses because of its anesthetic and cooling effect and in the form of nose drops or sprays, cough drops, and medicated cigarettes for rhinitis, pharyngitis, laryngitis, and bronchitis. Like other essential oils, it is also used occasionally as a carminative.

Menthol causes relatively few allergic reactions. It is a well-recognized cause of the eczematous contact type of dermatitis, but in a study of the literature we were unable to find any other allergic reactions recorded.

The present report is that of a case of nonthrombocytopenic purpura caused by menthol present in medicated cigarettes. " 'Kool' cigarettes [1] are cigarettes containing U.S.P. grade menthol added to a blend of domestic Bright and Burley tobaccos and imported Turkish tobaccos." They are used by smokers because of the cooling effect of menthol on the mucous membranes of the mouth and pharynx.

REPORT OF A CASE

A. S., a white housewife and charwoman, aged 36, was first seen June 6, 1949, because of a generalized rash. The family history was essentially noncontributory except that her mother, aged 65 years, had Ménières disease. She, herself, had always been well, except for chronic frontal sinusitis of 15 years' duration. She had never previously had dermatoses or allergic manifestations.

The eruption had begun rather insidiously in November, 1948, with only a few scattered lesions on her arms and legs. By March, 1949, the asymptomatic rash had spread rapidly and profusely. She was a well-nourished, rather plethoric white woman in no obvious discomfort. Except for the eruption, the physical examination was completely noncontributory.

The eruption was symmetrically distributed over the hands, forearms, arms axillary folds, thighs, and legs. Hundreds of purpuric macules varying in size from 1 to 5 mm. were present. Telangiectatic macular lesions were also present on the palms, palmar surfaces of the fingers, the nose, cheeks, and upper chest. No mucous membrane lesions were noted. The clinical impression was purpura. Biopsy of a lesion on the forearm was consistent with purpura; there was hemorrhage into the cutis with edema and some diffuse as well as perivascular cellular infiltration consisting mainly of lymphocytes with a few mononuclear cells.

The erythrocyte count was 5 million per cubic millimeter with a hemoglobin value of 14.5 gm. per 100 cc. (equal to 100%). The leucocyte count was 14,000 per cubic millimeter, with a differential count of mature polymorphonuclear leucocytes, 68%; small lymphocytes, 20%; large lymphocytes, 9%; and eosinophiles, 3%. Platelets numbered 180,000 per cubic millimeter and the bleeding time 5 min. 15 sec. The coagulation time was increased to 12 min. and the erythrocyte fragility test was abnormal with hemolysis at 0.46 to 0.4% saline solution (normal 0.44 to 0.34% saline solution).

Our clinical impression was that of a nonthrombocytopenic purpura. Every effort was made to investigate a possible drug etiology. She denied all recent medication, but admitted to rather large doses of acetylsalicylic acid years ago for sinusitis. Late in February, 1949, long after the eruption had appeared, she had taken a proprietary medication containing quinine, acetylsalicylic acid, ephedrine sulfate, magnesium hydroxide, caffeine citrate, and sodium salicylate for only two days.

The patient was treated with vitamin K, rutin, and ascorbic acid without improvement for two weeks. On July 1, 1949, she mentioned that she had been smoking one to two packs of kool® cigarettes since September, 1948, two months prior to the appearance of her eruption. Kool® cigarettes were then interdicted, and at the same time she resumed the smoking of nonmedicated cigarettes. The eruption had improved approximately 75% when seen Aug. 2, 1949 and had completely disappeared when examined Aug. 22, 1949. A hemogram at this time was normal with normal blood coagulation time and erythrocyte fragility test.

On Sept. 1, 1949, with her skin normal, she was begun on a test dose of menthol, 1 grain (60 mg.) three times daily, for a period of 14 days. Upon examination Sept. 15, 1949, the purpuric eruption had recurred on the upper and lower extremities, about a third as profusely as when originally seen. At this time the coagulation time had again increased to 9 min. with the remainder of the hemogram normal. The drug was discontinued, and by Oct. 15, 1949, the purpura had disappeared and the blood coagulation time had returned to normal.

The patient thereupon was instructed to resume smoking the mentholated cigarettes, and by Dec. 23, 1949, some purpuric lesions had reappeared on the upper and lower extremities and on the face. Discontinuing the medicated cigarettes and substituting nonmentholated cigarettes again resulted in complete disappearance of the eruption when seen Jan. 18, 1950. Since then she has had a mild recurrence on her face and extremities when she smoked a pack of kool® cigarettes daily for several weeks.

When last seen, Oct. 1, 1950, the patient had not smoked kool® cigarettes for the past three months and showed no evidence of purpura.

SUMMARY

A case of nonthrombocytopenic purpura caused by mentholated cigarettes is reported. The rash first appeared about two months after our patient began smoking one to two packs of mentholated cigarettes daily. The eruption disappeared when she discontinued smoking the medicated cigarettes, and it was experimentally reproduced when she ingested 1 grain (60 mg.) of menthol three times daily, and also on several occasions when she resumed smoking the mentholated cigarettes. The only consistent hematologic abnormality which paralleled the purpuric eruption was an increase in the blood coagulation time.

Our review of the literature revealed no other such case reported.

121 S. Highland Avenue, 24.
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From the Department of Dermatology and Syphilology, University of Maryland School of Medicine.

[1] Brown & Williamson Tobacco Corporation, 1600 W. Hill Street, Louisville 1, Ky.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

The Council wishes to express its appreciation for the valuable cooperation of the Advisory Committee on Audiometers and Hearing Aids for its expert services. The Committee members are Drs. Gordon Berry, Richard K. Cook, Hallowell Davis, Kenneth M. Day, Edmund P. Fowler, Isaac H. Jones, Dean M. Lierle, M. H. Lurie, Douglas Macfarlan and C. Stewart Nash.

Howard A. Carter, *Secretary.*

AUDIOMETRY AT HIGHER FREQUENCIES

The Advisory Committee on Audiometers and Hearing Aids wishes to call the attention of all those engaged in audiometry to certain facts concerning sounds above 6,000 cycles per second. The facts seem to be generally unknown or overlooked and may cause unfortunate errors of screening, prognosis and diagnosis. The facts are:

(*a*) There is no accepted normal threshold of hearing for any frequency above 8,000 cycles per second (cps.).[1]

(*b*) The currently accepted normal threshold of hearing for 8,000 cps. is under criticism and will undoubtedly be revised if sufficient reliable data to support the current criticisms are accumulated.

(*c*) In view of the uncertainty about the correct normal value for 8,000 cps. any extrapolation of the normal threshold curve to higher frequencies can be considered as only a very rough approximation.

(*d*) The scatter (standard deviation) of thresholds at 8,000 cps. and at 4,000 cps. is considerably greater than at lower frequencies.

(*e*) Physical measurements of the pressure output of an audiometer earphone begin to be difficult and uncertain at 6,000 cps. and are very unreliable at 12,000 cps. (American Standard Method for the Coupler Calibration of Earphones, Z24.9-1949.) This is due to purely physical [2] relationships between the wavelengths of the high frequency sounds and the necessary dimensions of the "coupler" in which the acoustic pressure is measured.

(*f*) At frequencies above about 8,000 cps. current audiometer earphones are relatively inefficient and are also subject to large variations from one receiver to another, even among those of the same model.

(*g*) Resonances within the ear canal are very important at high frequencies and these resonances vary with the size and shape of the canal and also with minor changes in the placement of receivers over the ears.[3] For example, in a recent test in a referee laboratory a systematic difference of several decibels was introduced by a slight variation in the thickness of the rubber cushion over the face of the receiver.

For these various reasons the Advisory Committee on Audiometers and Hearing Aids has added a new stipulation to its minimum requirements for pure tone audiometers for diagnostic purposes, and also for screening audiometers, regarding any test frequencies above 8,000 cps. as follows: If any such frequencies are provided as test frequencies it must be clearly indicated on the audiometer that any measurements made at such frequencies are only rough approximations. In the opinion of the Committee such high frequencies in an audiometer are only of qualitative value and it is misleading to record in decibels any hearing losses above 8,000 cps. This situation is not likely to be improved by advances in the art or science of acoustics since it depends in large part on biological variability in the anatomy of the ear canal as well as on certain inescapable physical relationships that involve the wavelength of sound. The Advisory Committee further recommends caution in the interpretation of hearing losses determined at 8,000 cps.

Implicit in these propositions is a fundamental criticism of any screening test that employs frequencies above 6,000 cps. The Advisory Committee on Audiometers and Hearing Aids will not recommend acceptance by the Council on Physical Medicine and Rehabilitation of any apparatus designed to employ frequencies above 6,000 cps. The Advisory Committee therefore suggests that users of audiometric tests reexamine their technics and instruments with care and determine whether or not these can be restandardized using the frequency 6,000 cps. in place of the higher ones.

The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.

Howard A. Carter, *Secretary.*

SILICONE BOUNCING PUTTY ACCEPTED

Manufacturer: General Electric Company, Waterford, N. Y.

Distributor: S. R. Gittens, 1620 Callowhill Street, Philadelphia 30.

Silicone Bouncing Putty is recommended by the manufacturer for therapeutic exercise of the fingers. It is marketed in cans each containing 2 ounces (57 Gm.) of the substance. It is a member of the silicone family, a class of organic compounds in which certain carbon atoms are replaced by silicon atoms. It is generally assumed that in the oily, greasy, rubbery and putty-like members of this class there are molecular chains consisting of alternate silicon and oxygen atoms thus: -O-Si-O-Si-O-. The silicon atoms, being quadrivalent like carbon, furnish attachments for side-chains containing carbon and other elements.

Its physical properties are unusually independent of temperature and unusually dependent on time. Given time, the Bouncing Putty flows like a liquid, and its viscosity at the boiling point of water is little different from its viscosity at subzero temperatures. But if struck suddenly, or if dropped on the floor, it bounces with an extraordinary resilience. It is not decomposed by the process of autoclaving ordinarily used in sterilizing surgical materials.

The substance is marketed simply with the claim that it is useful in some kinds of therapeutic exercise for the hands. The Council on Physical Medicine and Rehabilitation obtained evidence that this claim was justified, and voted to include Silicone Bouncing Putty in its list of accepted devices.

THERA-PLAST ACCEPTED

Manufacturer: Thera-Plast Co., 154 Nassau Street, New York 38.

Thera-Plast is a silicone (compound of carbon, oxygen and silicon) proposed for use in therapeutic exercises for the hands. While some compounds of the silicone group are oily or rubbery, Thera-Plast is a semi-solid which at first sight resembles putty. It differs from putty in two respects, however. On the one hand it is distinctly liquid, and slowly spreads out on a flat surface or takes the shape of its container; on the other, it is extremely resilient to sudden shocks and, if it is not shattered, will bounce like rubber. It is practically unaffected, either physically or chemically, by water at freezing and boiling temperatures. It is supplied in tins containing 57 Gm. (2 ounces) of the silicone.

As a material for therapeutic exercise it differs from putty in that it will yield even to the weakest pressure if given time. It also differs from rubber objects of various forms in that it does not retain any given shape for more than a few seconds.

From sources acceptable to the Council evidence was obtained that this substance was useful in some types of therapeutic exercise. The Council on Physical Medicine and Rehabilitation voted to include Thera-Plast in its list of accepted devices.

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THE ATLANTIC CITY MEETING

Elsewhere in THE JOURNAL are an abstract of the Proceedings of the House of Delegates and a review of some of the other activities at the recent annual session of the American Medical Association. This meeting, which was held in Atlantic City, was attended by approximately 12,000 physicians, who, with their families, helped swell the total registered attendance to more than 32,000. The scientific programs and descriptions of the technical exhibits were listed in an earlier issue of THE JOURNAL (April 14, 1951). Many of the papers that were presented at the Section meetings will appear in coming issues of THE JOURNAL, but some months necessarily will elapse before all the communications that are accepted for publication in THE JOURNAL can appear in print. Some of the papers that do not appear in THE JOURNAL will be published in the specialty journals.

It is impossible to present in a summary all that occurred at the meeting. It also is impossible to direct attention to the many fine contributions made by those who presented papers or exhibits. Lack of space alone is a sufficient limiting factor. However, for physicians who did not attend this 100th annual meeting of the American Medical Association, a brief survey of some of the occurrences that were somewhat extensively commented on by those in attendance has been prepared and appears in the Organization Section of this issue. In the past it has been customary to offer an editorial immediately after the meeting, but in an attempt to provide more extensive coverage this newer approach is offered. It may fail to reach its objective, but the Editor would be interested in the reactions of the readers so that plans for future meetings may be made.

A QUOTA BASIS FOR THE APPOINTMENT OF INTERNS

In this issue of THE JOURNAL, the Council on Medical Education and Hospitals announces the establishment of quotas for the appointment of interns to become effective July 1, 1952. The announcement points out that, as a result of an increasing demand by hospitals for the services of interns over the past 10 years, the number of internships offered by approved hospitals now exceeds the number of available applicants by at least 3,000. This disparity has given rise to many undesirable consequences, some of which seriously threaten the integrity of the whole program of intern training. The exertion of undue influence on prospective applicants, overstaffing with interns in some hospitals and emphasis on noneducational aspects of the internship in other hospitals, are cited as some of the undesirable results of the present situation which make necessary the establishment of internship quotas, even though limitations of this type are distasteful.

To correct these conditions which have arisen in the present unwholesome competition for interns, the Council has established a quota system to be computed on the basis of a percentage of the number of internships offered in 1950 or the total number offered in 1940, whichever is the greater. This dual basis has been adopted so as to avoid penalizing those hospitals that have not increased their requirements for interns during the period concerned. The reduction in the number of internships to be offered in hospitals requesting the Council's approval will bring the number of positions into approximate balance with the number of applicants available to fill them. There will, however, still be a sufficient excess of internships offered to permit freedom of choice by the applicant and to stimulate hospitals to reasonable competition for applicants from the standpoint of their educational programs.

The first list of hospitals approved on this basis will appear in the 1951 Internship and Residency Number, scheduled for publication Sept. 29, 1951. It is anticipated that hospitals approved by the Council will recognize the necessity for the establishment of this quota system and that a readjustment of hospital service can be made without impairment of the quality of patient care.

PRODUCTION OF PHYSICIANS: POLICY OF THE AMERICAN MEDICAL ASSOCIATION

There has been sufficiently widespread misunderstanding of the American Medical Association's attitudes and activities with respect to the production of physicians to make desirable the preparation of a statement summarizing the Association's policy on this subject. At the recent meeting in Atlantic City, the Council on Medical Education and Hospitals in a special report to the House of Delegates set forth a clear positive statement summarizing the Association's position on this important subject. This report was unanimously approved by the House of Delegates as a reaffirmation of official policy.

The full text of the report is published on page 865 of this issue of THE JOURNAL. Stating that the American Medical Association has no desire to limit the production of properly trained physicians to serve the American people, the report points out that all medical schools in operation in the United States at present are fully approved by the American Medical Association and the number of schools approved is determined entirely by the ability of schools to meet acceptable educational standards. The report further emphasizes that the number of students admitted to individual schools is determined by the proper authorities in each school in accordance with the school's educational philosophy and its own judgment of its educational resources. The American Medical Association may advise a school to reduce its enrolment only when there has been an enrolment increase considerably in excess of increases in facilities.

The report summarizes the increase in the number of students in approved medical schools since the Council published its first list of approved medical schools in 1910. It points out that, within the last 10 years alone, the number of medical students has increased by almost 5,000, which is the equivalent of creating at least 15 new medical schools of average size. Cognizance is also taken of the important activities of state medical societies in providing effective leadership in the establishment of new medical schools and the expansion of existing schools. Attention is also called to the fact that the American Medical Association has facilitated the entrance into practice in this country of physicians educated abroad, a policy which in itself should make it clear that the Association does *not* attempt for selfish reasons to limit the number of physicians practicing in the United States. The statement concludes with the pledge that the Association will in the future continue its efforts to maintain high standards of medical education and to support expanding programs of medical education in the interest of the American people.

While discussions of the present adequacy of the supply of physicians will undoubtedly continue, the publication of this statement should serve the useful purpose of helping to keep the debate focused on the subject and not permitting it to become an unjustifiable attack on the medical profession.

PLASMA L. E. TEST IN LUPUS ERYTHEMATOSUS

Disseminated lupus erythematosus is a prolonged febrile disease which may superficially resemble rheumatic fever and rheumatoid arthritis. The diagnosis may be extremely difficult in the absence of cutaneous manifestations. Hargraves, Richmond, and Morton [1] observed in bone marrow preparations two types of cells which have not been previously described. One cell, which they designated as a "tart" cell, appears to be a histiocyte or a monocytoid reticuloendothelial cell that contains a second characteristic nucleus within the Hof of the primary nucleus. This cell was found in practically all bone marrows. It was present in increased numbers in bone marrow preparations from patients with lymphoblastoma, pulmonary infection, or metastatic carcinoma. The second cell described was referred to as an "L. E." cell and was found in the bone marrow only in patients with acute disseminated lupus erythematosus. The L. E. cell is a mature neutrophilic polymorphonuclear leukocyte, which differs from the tart cell by the difference in the structure of the engulfed material. In the L. E. cell the engulfed mass, characterized by lack of chromatin structure, is almost homogeneous and has a smoky appearance. In the tart cell the chromatin structure of the engulfed material resembles the nucleus of a lymphocyte. The L. E. cell is apparently the result of a lytic-phagocytic action. This interesting phenomenon was observed only in the bone marrow in certain cases of acute disseminated lupus erythematosus. These findings were corroborated by Haserick and Sundberg,[2] who demonstrated the L. E. cell in four out of five cases of acute disseminated lupus erythematosus but were unable to find it in any other condition in which leukopenia was prominent. They believed that the observation of L. E. cells will aid in the diagnosis of disseminated lupus erythematosus in cases in which skin manifestations are lacking.

Hargraves [3] could not demonstrate L. E. cells in direct smears of bone marrow. By the addition of anticoagulants to the peripheral blood and centrifugation of the material, L. E. cells could be demonstrated in smears from the buffy coat layer. In cases in which bone marrow had been positive, L. E. cells were found in small numbers in the peripheral blood. Sundberg and Lick,[4] on concentrating the material, have likewise found L. E. cells in the peripheral blood.

Hargraves conceived the idea that the factor responsible for nucleolysis, agglutination, and phagocytosis as observed in the L. E. cell might well be in the plasma of patients with acute disseminated lupus erythematosus and that it would be possible to reproduce L. E. cells with the use of bone marrow from patients who did not have the disease. Using plasma obtained from venous blood of patients with acute disseminated lupus erythematosus, he placed into it bone marrow material obtained from patients with various other diseases. The mixture was incubated at body temperature for a short time, and concentrated preparations were made from it. Typical L. E. cells, as well as the phenomenon of nucleolysis and agglutination, were observed. Haserick [5] has made the same observation; he concluded that the plasma of patients with acute disseminated lupus erythematosus contains a factor that induces the formation of rosettes of leukocytes and characteristic inclusion-containing cells (L. E.) when mixed with normal bone marrow preparations. The particular factor was contained in the gamma globulin fraction of plasma in acute disseminated lupus erythematosus. The L. E. factor disappeared from the blood during remissions of the disease and reappeared during relapses.

Lee and his associates [6] found the L. E. cell in peripheral blood and bone marrow in all of 17 proved cases of acute disseminated lupus erythematosus. The cells were usually present in greater numbers in the marrow. They were not able to demonstrate the L. E. cell in diffuse vascular disease, rheumatoid arthritis, dermatomyositis, scleroderma, rheumatic heart disease and subacute bacterial endocarditis.

Haserick [7] reports in a recent communication on 23 patients with systemic lupus erythematosus with L. E. cells in the plasma. The test was found also to be positive in less fulminating cases, in many of which the clinical

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6. Lee, S. L.; Michael, S. R., and Vural, I. L.: The L. E. (Lupus Erythematosus) Cell: Clinical and Chemical Studies, Am. J. Med. **10:** 446 (April) 1951.
7. Haserick, J. R.: Plasma L. E. Test in Systemic Lupus Erythematosus: Study of Twenty-Three Patients with Positive L. E. Tests, J. A. M. A. **146:** 16 (May 5) 1951.

history was not typical for acute disseminated lupus erythematosus. Among such cases there were unusual combinations of rheumatoid arthritis and epilepsy. These variations from the typical concept of acute disseminated lupus erythematosus suggested that (1) the plasma L. E. test can be positive in diseases other than acute disseminated lupus erythematosus, i. e., false positive L. E. tests can occur, or (2) acute disseminated lupus erythematosus is actually a frequent, protean disease with an atypical phase that may be detected with certainty with the plasma L. E. test. From the clinical and laboratory data found in the 23 patients, it was evident that a positive plasma L. E. test is associated with systemic lupus erythematosus although the presenting signs and symptoms may be suggestive of any of a group of diseases that Klemperer and his co-workers designated as collagen diseases. Haserick concludes that a patient with "atypical rheumatoid arthritis" or "rheumatic fever" and positive serologic reactions for syphilis may in reality have lupus erythematosus and false positive reactions for syphilis. Similarly, an epileptic person with one or more of the signs of so-called collagen disease may have a positive L. E. test to account for the convulsive seizures.

The plasma L. E. test is a valuable diagnostic test in systemic lupus erythematosus. The test may correlate many seemingly unrelated conditions under the diagnosis of systemic lupus erythematosus. The reaction continues positive longer than the reaction to any other laboratory test during remissions of lupus erythematosus.

SURGICAL TREATMENT OF FOCAL EPILEPSY

Most patients with chronic epilepsy can be more or less successfully treated with anticonvulsant drugs, psychotherapy and occupational rehabilitation. Anticonvulsant medication, according to Walker,[1] will eliminate the attacks in more than 50% of the cases and markedly decrease seizures in another 25%. It is in the resistant 25% that surgical treatment may be considered. This type of treatment is applicable to cases of focal epilepsy. Diagnosis of focal epilepsy is arrived at by a careful study of the clinical history of the patient, in particular of the character of the seizures, of electroencephalograms, roentgenograms of the skull, pneumoencephalograms and cerebral angiograms. The character of the seizures is so important for the diagnosis that at times it is advisable to bring on an attack by intravenous injection of pentylenetetrazole. The provoked seizures have all the characteristics of a spontaneous one. Electroencephalogram has become an indispensable test in the diagnosis of epilepsy. Convulsive activity is accompanied by rapid fluctuations of electrical potential, giving the encephalogram the appearance of a series of spikes. Patients with chronic epilepsy due to cortical damage have, as a rule, localized electroencephalographic alterations in the form of a slow wave focus with or without spiking.

Cerebral seizures may be caused by a variety of focal lesions, such as meningocerebral scar, local cortical atrophy, local microgyria, expanding lesions, such as brain tumor or cerebral abscess, cysts and other abnormalities. According to Penfield all of these lesions have a common feature, namely, the presence of a zone or area of ganglion cells in which the circulation has been interfered with to such an extent that the life of the cells is threatened. It is at some point in these peripheral and partially destroyed zones that the actual focus in which the epileptic discharge originates is to be found. Partial anoxemia produces in ganglion cells an abnormal state in which spontaneous neuronal activity is increased. This increase constitutes the epileptogenic factor. Cutting of an adhesion, opening of a cyst or removal of a tumor does not constitute adequate surgical therapy. The epileptogenic focus in the marginal partly involved gyri must also be removed. In 1941 Penfield and Erickson[2] published an analysis of all the patients who underwent cortical excision during a 10 year period, 1929 to 1939. One hundred and fifteen of these patients were followed one to 11 years; 43% were free from seizures or had one or two attacks; 26% considered themselves 50% improved; 9% were slightly helped, and 22% were not improved. In a later report Penfield and Steelman[3] presented an analysis of 76 patients operated on during the six year period 1939-1944, with one fatality, which was caused by an infected extradural hematoma and meningitis. Of the 75 patients followed, cortical excision was performed in 59 and craniotomy without excision in 16. Of the 59 patients who underwent cortical excision, 15 were completely free of seizures, 18 were almost completely free, eight were 50% improved, seven were only slightly improved and 11 felt that they had derived no benefit from the operation.

Removal of cortical tissue is justifiable in any area of the cortex except the arm and leg area of the precentral gyrus and in the essential speech area of the dominant hemisphere. The surgical treatment of focal epilepsy was made possible by the advances in the field of neurophysiology and the more accurate knowledge of cortical localization.

THE NURSE SHORTAGE

The present critical shortage of professional nurses is a matter of grave concern, in view of the indispensable role of the nurse in medical care. The shortage has arisen in part from increased demand for nursing service due to such factors as increased occupancy of available hospital beds, shorter working hours for nurses, expansion of public health work, and the increasing complexity of medical knowledge and techniques. Equally or more important factors, however, are the failure of approximately one-third of the students entering nursing schools to finish their course of training, and the fact that many registered nurses are not working at the profession. In 1949, the total number of professional registered nurses in the United States and territories was 506,050, but only 59% of these were actually engaged in nursing.[1] According to a recent release from the American Nursing Association, an additional 65,000 registered nurses are needed to render minimal nursing care to civilians, while an additional 3,000 nurses are required by the armed services. It is thus not surprising that nursing has been placed on the list of critical occupations by the United States Department of Labor.

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[3] Penfield, W., and Steelman, H.: Treatment of Focal Epilepsy by Cortical Excision, Ann. Surg. 126:740 (Nov.) 1947.

[1] 1950 Facts About Nursing: A Statistical Summary, New York, American Nurses' Association, 1950.

In recent years, several studies have been undertaken to find ways to overcome the current shortage of nurses and to provide for additional needs that future developments in medicine will engender. The American Medical Association has taken an active role in these endeavors. In 1947 the Committee on Nursing was appointed to study nursing problems in the United States,[2] and in 1948 the American Medical Association joined with the American Hospital Association, the American Nurses Association and the National League of Nursing Education to form the Joint Commission for the Improvement of the Care of the Patient.[3]

Proposals for remedying the current shortage of nurses have in general centered around a more efficient use of nursing personnel, improved personnel practice, and the wider use of practical nurses and auxiliary workers. The institutional nurse, in particular, is all too often overburdened with clerical and housekeeping duties, which keep her from exercising the skills and knowledge gained during her period of training. In addition, many activities engaged in by the professional nurse could be adequately relegated to properly trained and supervised practical nurses and auxiliary workers, such as ward clerks, orderlies, and ward maids. Concerted efforts are being made not only to increase the training facilities for practical nurses but also to insure their integration into the nursing team. Already there are 318 or more schools of practical nursing in this country, with a total enrolment of 5,971,[4] a number which, however, falls far short of the demand. Emphasis, too, is being placed on the value of additional training for graduate nurses to enable them to undertake confidently the growing demands for nursing service in such fields as industry, school and college health clinics, home care, geriatrics, rehabilitation, and public health. Finally, it is becoming more and more evident that the adoption for the nursing profession of salaries, working hours, sick leave, vacations, and retirement provisions comparable to those of other occupations for women with equivalent education and training would do much to keep present nurses in the profession, to encourage retired nurses to return to active duty, and to stimulate the recruitment of new nurses.

SURGICAL THERAPY OF MITRAL INSUFFICIENCY

Dramatic advances have been made in recent years in the field of cardiac surgery. Great ingenuity has been shown in the devising of surgical technics for the correction of congenital and acquired anomalies of the heart. One particularly ingenious technic devised by Murray[1] for the surgical correction of mitral insufficiency has recently been modified by Bailey[2] with considerable success.

In 1938 Murray obtained significant improvement in surgically induced mitral regurgitation in dogs, and later[3] in man, by creating within the ventricle a new valve, of the sling or hammock type, which occluded the mitral orifice during ventricular systole and prevented the reflux of blood into the auricle. He constructed this valve by inserting a segment of peripheral vein reinforced with tendon entirely through the left ventricle, so that it formed a sling just below the mitral orifice. This graft was sutured to the outer surface of the ventricular wall at each end but was allowed to swing freely within the ventricle. During ventricular systole it was forced by the regurgitating current of blood against the patent mitral orifice, thus occluding it. During ventricular diastole the valve dropped away from the opening, permitting the flow of blood from the auricle into the ventricle. Such a valve survived for seven years without degeneration or loss of flexibility in one of Murray's dogs. Subsequently this procedure was employed in 10 patients with advanced mitral stenosis to correct the regurgitation that sometimes follows commissurotomy. Fairly satisfactory results were obtained in eight of these patients during an unspecified period of observation.

More recently Bailey and co-workers, in attempting to repeat Murray's experiments in animals with a somewhat modified technic, found that in all instances the free valve graft soon lost its resilience and became a shrunken fibrotic band, with consequent loss of efficiency as a valve. A similar experience was encountered when free grafts of pericardium were substituted for the vein grafts. These investigators concluded that free grafts of any tissue, deprived of their original blood and nerve supply, would prove unsatisfactory for long term correction of mitral insufficiency.

Their solution to this problem was the creation of a pedicled tube graft of pericardium, one end of which was left in situ while the other was freed and passed through the left ventricle to form the desired sling valve. Observations on animals over a period of months indicated that these pedicled grafts with intact blood supply functioned adequately and did not show a tendency to contract or become indurated. The method was therefore applied to seven patients with advanced mitral regurgitation. In two of these patients, who had both mitral stenosis and insufficiency, commissurotomy was performed at the same time to relieve the stenosis. The operation resulted in complete control of the regurgitation in three patients and in reduction of the regurgitation by at least 75% in three additional patients. In one patient the regurgitation was not controlled, probably because of improper placement of the valve. These early results are extremely encouraging. The future progress of these patients will be watched with great interest.

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THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

As I stood before the House of Delegates in Atlantic City and repeated the oath of office of the President of the American Medical Association, I experienced one of the proudest moments of my life. The honor you have bestowed on me is accompanied by tremendous responsibility—a responsibility so great that no one can possibly carry it alone. Therefore, in my first message to you, I ask that you share this responsibility with me.

In thinking about the scope of our Association's activities over the past 104 years, it has become increasingly clear to me that our significant progress has been possible only through the combined efforts of individual physicians working together in their county, state, and national medical organizations. We can be justly proud of the progress we have made in advancing medicine, but we could accomplish far more if every physician in the United States were an active, interested member of his county medical society.

The American Medical Association has over 140,000 members, but numbers alone will not make us strong. The strength and success of the American Medical Association depends directly on the strength and success of its state and county medical societies. They in turn maintain their stature in direct proportion to the interest exhibited by the individual members on their roster.

Membership in a county medical society is a privilege that must be paid for with more than money. Dues are necessary, of course, but even more important is attendance at meetings, a willingness to participate in committee work, and, above all, a vision of the goals to be attained and a desire to work together with fellow physicians in reaching these goals.

The Principles of Medical Ethics sums up our membership obligations thus: "For the advancement of his profession, a physician should affiliate with medical societies and contribute his time, energy and means so that these societies may represent the ideals of the profession."

There are some who say that they do not have time to give to their county medical society because their practices are too demanding. In most instances this is only an excuse, the same story that too many physicians employ to avoid civic responsibilities of various kinds. I would remind such a physician that he is not as independent as he thinks; that many cultural, social, and political forces work constantly to change for better or for worse the conditions of his practice. Organized medicine is his bulwark against unfavorable forces, and it deserves his interest and support.

Another complaint that I have heard repeatedly is "The Society is run by a clique; why should I attend meetings?" While this may be true in isolated cases, the majority of societies welcome interested and willing workers. The same criticism is voiced of our state medical societies and of the American Medical Association. I know of no organizations in America that are run on a more democratic basis than those of physicians. Perhaps it does seem that the same persons are active and influential in many medical organizations. If such be the case, you can be sure that they have developed their interest and leadership at the cost of attending meetings and actively participating in the business of the society.

Recently there have been a few physicians who have resigned from the American Medical Association because they did not agree with some of its policies. I wonder if these same persons consider giving up their American citizenship when they disagree with the administration in power? This is admittedly a strong comparison, but it seems infinitely more logical to me for those of our members who disagree with some American Medical Association policies to exercise their membership privileges to the fullest in the hope of effecting a change in the policies they oppose, rather than taking the sterile course of resigning.

Why is it so important to have strong medical organizations? Because, as in other areas of society, groups can accomplish much more than individuals. Most of you are familiar with the excellent group accomplishments of county medical societies. They have successfully set up night and emergency telephone-answering systems, established group malpractice plans, furnished health information to newspapers and radio stations, operated grievance committees to hear and settle patient complaints, organized community health councils, spearheaded hospital drives, and many, many other community service projects in addition to their scientific programs. These activities would be virtually impossible for any individual to conduct.

In the same way, the American Medical Association, on the national level, performs public service functions and professional service functions that would be difficult for any individual or local group to carry out. It is easy for most physicians to understand the importance of county society and state society membership, but the American Medical Association seems far removed from the individual M.D. Actually, its many activities touch the lives of you and your patients almost daily.

A year ago, after my selection as President-Elect, I paid a five-day visit to the headquarters office of the American Medical Association in Chicago for the express purpose of learning all I could about the workings of the Association. They were among the most enlightening and valuable days that I have ever spent. Even though I had been active in medical organization affairs for many years and had served in the A. M. A. House of Delegates and on the Campaign Coordinating Committee, I was amazed at the scope of the Association's activities. Some council or bureau of the Association is concerned with every aspect of medicine and health. I was impressed, too, with the spirit of service which pervades the doctors and laymen who make up the headquarters staff. When I completed my visit, I left with a feeling of deep pride that I was a member of this great organization. I left also with an optimistic heart, feeling that much could be accomplished in the future. Because most physicians do not, or cannot, take the time to spend five days at the Association headquarters, I plan to devote a number of my President's Pages to describing some of the activities I observed on this visit. Briefly, I shall discuss the scientific activities of the Association, including the Division of Therapy and Research, the scientific publications and the two annual scientific meetings. I also plan to tell you what I have learned of the American Medical Association's activities in the socioeconomic fields of medicine—health insurance, indigent care, the problems of the aged and chronically ill, rural health, industrial health, and so forth. If you will come with me on this monthly word-visit to our Association headquarters, I believe you too will leave with a new pride in our profession and what it is attempting to do through its national association.

So far, in discussing the advantages of strong medical organizations, I have dwelt largely on their day-to-day scientific and public service contributions. There is another role that medical organizations play which is perhaps even more important—their role as the voice of the profession in public affairs and matters of ethics.

You are all well aware of the fight which our profession has been forced to wage for the last few years in order to preserve the freedom of medical practice in this country. There is no doubt that this battle would have been far more difficult, if not impossible, to win if we had not been organized on a county, state, and national basis. The price of liberty is vigilance, and we must remain on guard. But our efforts have been successful to the extent that we have won a breathing space wherein we may turn our attention to weak spots within our own ranks.

The general public thinks of the medical profession in terms of the services that are rendered by each physician. When one of our colleagues violates the Principles of Ethics, he jeopardizes not only his own position but that of the entire profession. The vast majority of physicians are ethical and take great pride in the quality of their service. But you and I know that there are a few who capitalize on medicine's high professional reputation for their own selfish ends.

It is one of the primary responsibilities of medical associations to uphold the high ethical standards of the profession. This is one of the main reasons why such organizations must be strong and vigorous. No medical association can ever expect to capture the respect of the people unless it makes a real effort to purge from its ranks those who choose to ignore the principles of ethics which govern its members.

For this purpose, if for no other, I urge you most sincerely to take an active part in your county medical society. A strong, courageous society can be a spiritual leader. It is only through medical organizations that unworthy physicians can be successfully disciplined. Only a medical association can deal with those who overcharge, who refuse service, who put income and personal comfort above their duty to their patients.

Self-discipline is a difficult challenge, but if we are to protect the medical profession from those who would destroy it, we must meet this challenge successfully.

John W. Cline, M.D., San Francisco.

ORGANIZATION SECTION

THE ATLANTIC CITY SESSION

On June 15, the 100th annual session of the American Medical Association came to a successful conclusion in Atlantic City. Acknowledged as this country's largest and most comprehensive medical meeting, the session drew more than 12,000 physicians to the city's huge convention hall and to the conference rooms of five of the largest hotels. Included in this registration were visitors from 46 foreign countries. As usual the scope of the session was tremendous. In a program arranged by the American Medical Association's Council on Scientific Assembly, 358 papers on many aspects of medicine were presented. At the same time 297 scientific exhibits occupying the entire lower level of the block-long convention hall and 350 technical exhibits covering an equivalent area on the main floor of the hall competed for the attention of those attending the convention. Added to this wealth of material were 37 medical motion pictures shown daily in two separate projection rooms and 17 color television demonstrations of surgical and medical procedures transmitted on a closed circuit from the Atlantic City Hospital.

SCIENTIFIC EXHIBITS

Unstinted praise of those attending this year's meeting went to the scientific exhibit. Here, grouped together according to the various medical specialties, were row after row of well-executed exhibits demonstrating vividly recent medical advances in each field or summarizing available knowledge on subjects of current interest. The enthusiasm of the exhibitors and the searching questions of the visitors made this one of the most valuable postgraduate educational features of the entire annual session. There were so many excellent displays that it was difficult for the committee on awards to select the most outstanding.

The Exhibits Committee on Awards made three Gold Medal, two Silver Medal, and two Bronze Medal presentations for the highest honors in Group I of the Scientific Exhibit—exhibits of individual investigations which are judged on the basis of originality and excellence of presentation. Recipients of one Gold Medal are Robert P. Glover, Charles P. Bailey, and Thomas J. E. O'Neill, Hahnemann Medical College, Hahnemann Hospital, and Episcopal Hospital, Philadelphia, for the exhibit on intracardiac surgery for acquired and congenital heart disease. The other Group I Gold Medal went to Willis J. Potts, William L. Riker and Robert DeBord, Children's Memorial Hospital, Chicago, for the exhibit on surgery for congenital heart disease. Group I Silver Medal winners are David Cayer and W. E. Cornatzer, Bowman Gray School of Medicine, Winston-Salem, N. C., for the exhibit on the role of lipotropic agents in liver disease—a study of phospholipid synthesis with the use of radiophosphorus. In the same group, the Bronze Medal went to William P. Boger, Walter V. Mattecci, Nelson H. Schimmel, and Harrison F. Flippin, Philadelphia General Hospital, Philadelphia, for the exhibit on benemid—its influence on paraaminosalicylic acid, penicillin, and other antibiotics.

The Gold Medal in Group II—exhibits that do not exemplify purely experimental studies but are judged on the basis of excellence of presentation—was awarded to Walter W. Williams, Springfield Hospital, Springfield, Mass., and Irving F. Stein and Melvin R. Cohen, Michael Reese Hospital, Chicago, for the exhibit on fertility and sterility—diagnosis and prognostic procedure. Silver Medal winners in that division were C. Stuart Welch and William Dameshek, Pratt Diagnostic Clinic, New England Center Hospital, Boston, for the exhibit on surgery of the spleen. The Group II Bronze Medal went to Robert R. Linton, Chester M. Jones, John J. Cranley Jr., James L. Buchanan, Daniel S. Ellis, and Arthur French, Brookline, Mass., for the exhibit on the surgical treatment of bleeding esophageal varices (portal hypertension).

Also popular were the daily clinical demonstrations on the management of fractures, the daily demonstrations of fresh pathological specimens and the symposiums on obesity, nutrition, and health. Honorable mention was given to the special exhibits on diabetes and on noise in industry.

TECHNICAL EXHIBITS

The technical exposition was the largest in the history of American Medical Association sessions. Over 2,000 representatives of 350 commercial firms demonstrated new drugs, diagnostic and therapeutic instruments, medical books, dietary products, and various appliances for the handicapped. Questions about the use of new therapeutic agents were answered, and samples and informative literature were distributed. Much interest was shown in such new instruments and equipment as the Norment hysteroscope, which permits direct visualization and biopsy of the interior of the uterus; the Berman electronic metal locator and the Kirby-Thurston electro-acoustic locator for detecting foreign bodies or gallstones; portable electrocardiographs; endoscopic cameras; self-adhering plastic disposable "Scotch" surgical drapes, and many compact laboratory diagnostic kits. Each year the elaborate "window dressing" of many of the commercial exhibits lends to this part of the session a holiday air that is sometimes misinterpreted by lay visitors and representatives of the press. Seeing this exhibit first because of its central location, they sometimes carry away the impression that this "county fair" atmosphere is the keynote of the entire session. Fortunately those who take the trouble to listen to the earnest exchange of ideas between the users and the producers of these medical goods or to attend the scientific exhibits and section meetings are soon unburdened of this completely erroneous impression. The majority of physicians leave the technical exhibit with new knowledge of technical advances, and the commercial representatives with new ideas for the improvement of their products, both to the ultimate benefit of the patient.

TELEVISION AND FILMS

A capacity audience was present continuously in the medical television exhibit. Here the crowd of visitors was taken by the television camera directly to the operating table or bedside, where experts demonstrated in full color a variety of surgical and medical procedures. Televised operations included appendectomy, thyroidectomy, pneumonectomy and sympathectomy. Angiography, sympathetic nerve block, and techniques of neurologic and dermatologic diagnosis were also demonstrated. The program was an unqualified success, and with one exception it proceeded without interruption. The interruption occurred when a normal male infant refused to be born on schedule, at 11:35 A. M. on Thursday. A good-natured crowd of 1,500 waited for two hours and 15 minutes for this debut.

The daily showings of the 37 scientific moving pictures likewise proved popular. Films on such topics as coarctation of the aorta, carcinoma of the rectum, corticotrophin (ACTH) in human disease, and treatment of poliomyelitis provided further postgraduate instruction for visiting physicians.

SECTION MEETINGS

The general scientific meetings held during the first two days in the grand ballroom of the convention hall were well attended. Outstanding speakers presented résumés of current knowledge in a variety of fields of general interest including medical aspects of atomic energy, blood substitutes in the treatment of shock, cardiovascular surgery, the newer drugs in the treatment of the anemias and tuberculosis, and the ever present problems of obesity, arthritis, acute gallbladder disease, thyroid disease, and personal maladjustment. In one of these meetings, Dr. Charles Huggins of Chicago reported on the favorable effects of bilateral adrenalectomy in far-advanced carcinoma of the prostate.

During the next three days, the 20 special sections of the scientific assembly held their meetings in the convention hall and in nearby hotels. The more than 350 papers presented reported the results of original investigative work in each of the medical specialties or brought the profession up to date on problems of particular interest. The newly created Session on Military Medicine was declared by Dr. Richard L. Meiling, chairman of the Armed Forces Medical Policy Council, to be an important instrument in the increasingly necessary liaison between physicians in civilian and military medicine. The urgent need for making available to each type of medicine the rapid advances being made in the other was stressed. As Captain E. R. Herring of the United States Navy so aptly stated, the war may at any time be deposited on the doorstep of the civilian doctor. After giving a dramatic account of combat medical experience in Korea, Captain Herring made an impassioned plea for the thorough training of all civilian doctors and medical students in the care of mass casualties before it is too late. Subsequent papers on the program continued this theme with discussions of the prevention and management of radiation injuries and reports on the results obtained with the open air exposure method of treating burns. Both Dr. Meiling and Major Gen. Harry G. Armstrong, Surgeon General of the United States Air Force, stressed the great importance of air evacuation of the wounded, and this was discussed in further detail by other speakers. It was pointed out that no American soldier is now more than 36 hours away from a hospital in continental United States, an important factor in the morale and recovery of the wounded. The rapidity of air transport also makes it unnecessary to overstaff overseas medical units during relatively quiescent periods since emergency medical personnel can be flown directly to the area of greatest need within 24 to 36 hours.

In the Section on Surgery success was reported with another method for the local treatment of burns. Drs. R. M. Curtis, J. H. Brewer, and I. W. Rose Jr., of Baltimore, found that a partially hydrolyzed casein gel covered with zinc-acetate-impregnated gauze formed a semipermeable membrane over the burned area that immobilized damaged tissue, prevented superficial protein loss, relieved pain, and minimized shock and infection. In the same section the results of the surgical treatment of mitral stenosis by commissurotomy were described by Drs. T. J. E. O'Neill, R. P. Glover, and C. P. Bailey, of Philadelphia. The operation, performed on more than 130 patients, yielded subjective and objective improvement in nearly all who survived. Excessive mitral regurgitation occurred in only a few cases.

Several investigators in the Section of Anesthesia reported good results with the use of the newer plasma substitutes, such as dextran, polyvinyl pyrrolidine (P. V. P.), and gelatin, in the restoration of blood volume in shock. These materials, which are useful as substitutes for plasma but not for whole blood, are now being stock-piled for use in civilian emergencies.

Extensive experience with corticotrophin (ACTH) was summarized in several sections in papers dealing with its use in postoperative complications, in ulcerative colitis, in rheumatoid arthritis and in various allergic, dermatologic, neurologic, and ocular conditions. Among the interesting sidelights in these presentations was the observation by Dr. Joseph Kirsner of Chicago that an occasional patient with ulcerative colitis who did not respond to intramuscularly administered corticotrophin showed a remission when given the drug intravenously. Dr. Robert Kierland of Rochester, Minn., reported the dramatic resolution of syphilitic interstitial keratitis following the application of 1% or 2% cortisone in aqueous solution to the affected eye.

In an outstanding symposium on arteriosclerosis and hypertension presented before a joint meeting of the Section on Internal Medicine and the Section on Experimental Medicine and Therapeutics, Dr. Ancel Keys of Minneapolis summarized the evidence on the relationship between cholesterol and atherosclerosis. He concluded that in clinically normal persons serum cholesterol is independent of dietary variations within the range of 200 to 800 mg. of cholesterol daily. If enormous amounts of cholesterol are ingested, hypercholesteremia is slowly produced, while cholesterol-free diets produce a decrease in serum cholesterol only if they are also free of fat. Animal and vegetable fats are equivalent in this respect. Diets low in fat, with 500 mg. cholesterol daily, also produce marked declines in serum cholesterol. Serum levels of total cholesterol and of abnormal protein-cholesterol macromolecules ("G") parallel each other and seem to predispose to the development of atherosclerosis. Total cholesterol values provide an index as satisfactory as or better than "G" values in predicting atherosclerosis.

In the same symposium, Dr. Irving Page of Cleveland discussed the current treatment of hypertension, emphasizing the multiple causation of this condition and suggesting a correct diagnosis as the first step in treatment. In essential hypertension he advised the establishment of a firm doctor-patient relationship and the institution of general physical and mental hygienic measures, supplemented by sedation. While not placing too great reliance on hypotensive drugs, he reported some success with one of them, L-hydrazinophthalozine (C-5968). In his experience, only 20% of the hypertensive population respond to a low salt diet and only rigidly selected patients respond to sympathectomy. Adrenalectomy was regarded as a last resort, while intravenous pyrogen therapy was found to be helpful in malignant hypertension provided renal failure was not severe. In addition to the papers mentioned, a number of other excellent studies on the subject of hypertension and atherosclerosis were presented in this and other sections.

The physiologic, pathologic, psychiatric, and industrial aspects of aging were considered in several sections, and the growing role of physical medicine in the rehabilitation of amputees, neuro-psychiatric patients and the chronically ill was stressed in the Section on Physical Medicine and Rehabilitation.

The successful use of fat emulsion in intravenous alimentation was reported by Drs. B. Van Itallie and J. Stare, of Boston, in the Section on Experimental Medicine and Therapeutics. A 15% homogenized fat emulsion providing 1,600 calories per liter was found useful as a caloric supplement in preoperative or convalescent patients unable to take adequate calories by mouth. Since the fat is used for energy, it spares endogenous protein and reverses the negative nitrogen and potassium balances due to inadequate caloric intake.

The usefulness of intravenously administered saccharated oxide of iron in the treatment of anemia was confirmed by Dr. C. C. Briscoe of Philadelphia in 100 obstetric and gynecologic patients.

In separate studies on the epidemiology of infectious hepatitis, Dr. R. Capps of Chicago and Drs. J. Stokes Jr., M. E. Drake, J. Farquhar, and M. C. Blanchard, of Philadelphia and Columbus, Ga., found that the virus of this disease may produce epidemics of infantile diarrhea without jaundice. The severity of the disease as well as the occurrence of jaundice appears to vary directly with the age of the patient. In the epidemic described by Capps, careful washing of the hands on the part of the student nurses prevented their contracting the disease from the affected infants. The epidemiologic value of the specific skin test employing inactivated virus was demonstrated in both studies as was the prophylactic value of gamma globulin.

In the Section on Radiology, Drs. I. Steinberg and T. Dotter, of New York, demonstrated the diagnostic and prognostic value of angiocardiography in 100 cases of lung cancer. Evidence of vascular abnormality as a result of the tumor was seen in 87% of the cases, and its location often aided in the determination of the operability of the lesion. It is predicted that the use of angiocardiography in patients suspected of carcinoma of the lung will become routine.

OTHER AWARDS

In addition to the scientific meetings and exhibits, the session included the presentation of a number of awards for notable contributions in various branches of medicine. The Distinguished Service Medal of the House of Delegates went to Dr. Allen O. Whipple of New York for his outstanding contributions in the field of operative surgery. The Joseph Goldberger Award in clinical nutrition, consisting of a gold medal and a $1,000 cash prize, was presented to Dr. Fuller Albright of Boston. Drs. Philip Levine and Alexander S. Wiener, two of the nation's most distinguished hematologists, received the $5,000 Passano Foundation Award for 1951, while Drs. Philip S. Hench and Edward C. Kendall were recipients of the $10,000 Dr. C. C. Criss Award for outstanding contributions in the fields of health and safety.

PRESS AND RADIO

That the activities of the annual session were of interest not only to physicians is indicated by the fact that 78 science writers, representing 58 newspapers, wire services, magazines, and publishing houses, were present to cover the scientific presentations and the actions of the A. M. A. House of Delegates. In addition, numerous radio broadcasts originated at Convention Hall and 20 special medical programs were recorded for subsequent broadcast to English-speaking countries by the Voice of America.

HOUSE OF DELEGATES AND BOARD OF TRUSTEES

For the first time in its history the House of Delegates seated two medical students. These student delegates were Warren R. Mullen of Jackson, Mich., and Harry W. Sandberg, Moline, Ill., who are president and vice president, respectively, of the Student American Medical Association, the objectives of which, so far, have been actively supported by societies organized in 40 medical schools.

Dave Beck of Seattle, executive vice president of the International Brotherhood of Teamsters, addressed the House of Delegates and other officers of the American Medical Association at a dinner meeting given by the Medical Society of New Jersey. Mr. Beck's paper, "Government Medicine—Danger Ahead," appears elsewhere in this issue of The Journal. The broadcast was carried by about 100 stations of the American Broadcasting Company and originated from station WMID in Atlantic City. There was no doubt in anyone's mind concerning the forcefulness of Mr. Beck's message as he expressed support of the physicians' campaign against compulsory health insurance and opposition to government-regulated medical care.

The announcement of the Board of Trustees that it plans to appoint a committee of prominent laymen representing industry, labor, education, agriculture, the bar, and the clergy, from which to seek advice in matters of medical care and from which it can obtain the viewpoint of the general public, was received with enthusiastic response. Several weeks may elapse before the members of the new committee can be announced, but the membership will be free of persons who are engaged in politics but who are so outstanding that their opinions will receive unquestioned respect.

Included in the officers elected were Louis H. Bauer of Hempstead, N. Y., as President-Elect; Oscar B. Hunter of Washington, D. C., Vice President; David B. Allman, Atlantic City, to fill Dr. Bauer's term on the Board of Trustees; Walter B. Martin of Norfolk, Va., to succeed himself as a member of the Board of Trustees; and George F. Lull, Chicago; J. J. Moore, Chicago; F. F. Borzell, Philadelphia, and James R. Reuling, Bayside, N. Y., to succeed themselves as, respectively, Secretary, Treasurer, Speaker, and Vice Speaker of the House of Delegates. Samuel P. Newman of Denver was elected to succeed himself as a member of the Council on Scientific Assembly, and F. D. Murphy, Kansas City, to succeed William S. Middleton as a member of the Council on Medical Education and Hospitals. The following members were elected to a Permanent Committee on Constitution and By-Laws: Louis A. Buie, Rochester, Minn., term to expire June, 1956; Britton E. Pickett, June, 1955; Floyd S. Winslow, June, 1954; Stanley H. Osborn, June, 1953, and James S. Stevenson, June, 1952. Henry B. Mulholland and J. D. McCarthy were elected to succeed themselves as members of the Council on Medical Service.

The 1951 Clinical Session will be held in Los Angeles, December 4-7. The A. M. A. meetings which will be held between now and the end of 1954 are scheduled as follows: December 4-7, 1951, Los Angeles; June 9-13, 1952, Chicago; Dec. 1-5, 1952, Denver; June 1-5, 1953, New York City; Dec. 1-4, 1953, Saint Louis; June, 1954, San Francisco; December, 1954, Miami.

The Council on Medical Service of the American Medical Association has maintained a physician placement service through which communities have been assisted in obtaining the services of a physician. The Board of Trustees at the Atlantic City meeting urged expanding the Association's activities in this field and the further development of physician placement services in state medical societies. The Board will give support to this program by financing it to the degree demonstrated to be necessary.

Several resolutions were introduced concerning membership in the American Medical Association and the abandonment of Fellowship. The Reference Committee on Amendments to the Constitution and By-Laws approved in principle the resolutions concerning membership but believed that abandonment of Fellowship deserved further study. The Committee recommended that this subject be referred to the standing committee of the House on Constitution and By-Laws with instructions to prepare such changes in the Constitution and By-Laws, in consultation with the Board of Trustees, as may be necessary to carry out the recommendations. These changes are to be reported to the House of Delegates at the next meeting.

The House also considered another change in the Constitution which must lay over until the next session. At this time a change in the By-Laws will be necessary to permit the five immediate past presidents of the American Medical Association to become members of the House of Delegates for five years with the right to vote. The composition of the Board of Trustees also was changed to include the president and president-elect as members. Thus, in addition to the nine elected members, the Board of Trustees includes the President and President-Elect.

Further consideration was given to the payment of dues for members in the American Medical Association. The 1952 dues of the Association were set at $25, this to include subscription to The Journal. Annual dues are prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates. Every active member pays his annual dues to his constituent association for transmittal to the secretary of the American Medical Association. The Board of Trustees may excuse a member from payment of dues for the following reasons, provided he is wholly or partially excused from paying local and state dues: 1. Members on whom the payment of dues would work a financial hardship. This fact must be certified to by the Secretary of the member's component society. 2. Members retired from active practice. 3. Interns and residents during the first five years following graduation, except that the time spent in the military service may be excluded in calculating the five-year limit. 4. A member temporarily in the Armed Forces. Dues will be remitted and pro-rated January 1 or July 1 following the date of the member's entrance into military service.

Members over 70 years of age may be excused, on request, from the payment of American Medical Association dues, regardless of local dues exemptions.

The firm of Whitaker & Baxter has been retained on a part time basis for 1952.

A lengthy and informative report submitted by the Committee on Blood Banks carried four recommendations of much interest to physicians: (1) that physicians and their families be urged to participate as donors for defense and civilian defense purposes, (2) that there continue to be developed state blood committees performing the functions above outlined, (3) that Congress be reminded of the urgent need for appropriations for reasonable federal stores of plasma and equipment for civilian defense, and (4) that physicians using blood recognize their responsibility in replacement from families and friends of patients.

The House adopted a resolution in which the American Medical Association requests Congress to make a thorough investigation of the school system in the United States with particular reference to the teachers and authors of textbooks advocating the overthrow of the American system of free enterprise by the infiltration of un-American policies of collectivism. A copy of this resolution was ordered sent to the President, Vice President and members of the United States Senate and House of Representatives.

The House also adopted a resolution which voiced protest against the use of tax funds provided from the federal government for postgraduate courses in medicine. This resolution introduced by the Arkansas delegation urged the adoption of efforts to eliminate from future budgets the expense of conducting courses in postgraduate work for the medical profession, the Arkansas delegation asserting that it is the desire of the medical profession of Arkansas to pay personally such fees for postgraduate instruction as is received in the future.

The House adopted a recommendation for the creation of a national joint commission on accreditation of hospitals by the American College of Physicians, American College of Surgeons, American Hospital Association, and the American Medical Association. The American College of Surgeons for 25 or more years has administered a hospital standardization program. Because of the expense of the project, plans were proposed whereby several bodies would participate. A report and recommendations for the various interested groups has been proposed by committees from each organization. The joint findings will be acted on by the four associations before they can be accepted as the guiding principles for a national joint commission on accreditation of hospitals.

At the request of the Council on National Emergency Medical Service, the Board of Trustees agreed to undertake a study immediately for the purpose of making recommendations and meeting the medical problems which may arise with the legislation pertaining to the universal military training act in order to best serve the medical and health needs of the armed forces and of the civilian population of this nation. Complex and far-reaching medical implications are present in this Act.

An invitation was accepted by the Board of Trustees to meet with the officers of the American Hospital Association for discussion of hospital-physician relations.

The Board also has authorized the appointment of a Committee on Nervous and Mental Diseases since the American Medical Association does not have a committee on mental health.

The Board approved the appointment of an Advisory Committee to the Council on Medical Education and Hospitals, to be composed of leaders in the field of education, practice and hospital administration, to study the problem of discrepancies between the number of internships offered and the number of available candidates. The Board has appropriated sufficient funds to permit the committee to function.

OTHER ACTIVITIES

Senator Robert M. Nixon of California, speaking at the Annual Conference of Presidents and Other Officers of State Medical Associations, said that physicians should become more interested in all types of political issues. At the same time, he commended the medical profession for its leadership in urging voluntary financial aid to medical schools. Dr. Julian Price of South Carolina was succeeded by Dr. W. Andrew Bunten of Cheyenne, Wyo., as president of this conference. Dr. J. Stanley Kenney of New York City is president-elect.

One of the highlights of the meetings of the Woman's Auxiliary to the American Medical Association was the presentation of a check for $10,000 to Dr. Elmer L. Henderson for the American Medical Education Foundation. The president of this more than 50,000 membership organization is Mrs. Harold F. Wahlquist of St. Paul, and the president-elect is Mrs. Ralph Eusden of Long Beach, Calif.

Another announcement of a large contribution to the American Medical Education Foundation was from the Board of Chancellors of the American College of Radiology, which voted to give $2,000 to this fund.

In the 35th annual tournament of the American Medical Golfing Association, V. W. Guidice, Ridgewood, N. J., and Harold Sargin, Cleveland, took the honors. More than 260 physicians turned out for this event.

Medical artists again exhibited their handiwork at an American Medical Association meeting. The exhibit included painting, sculpturing, photography, needlework, ceramics, jewelry, and other forms of artistic effort. There were more than 700 entries in 18 different media. The American Medical Art Association, which has 4,000 members in the United States, Canada, and Hawaii, now has as its sponsors the J. Henry Helser & Co., investment managers on the Pacific coast. This company provided approximately 200 trophies for exhibit awards. All entries will be displayed at Macy's department store in New York City from June 25 to July 5.

BROAD MEDICAL INTERESTS

Evidence of the interest of the profession in the affairs of the Association was seen in the large number of visitors attending the meetings of the House of Delegates and at the room-filled Reference Committee meetings. Many delegates and other members of the Association complained that it was impossible for them to attend all the meetings that interested them. This complaint was in the nature of a compliment, however, because it showed the broad field of interest of the House and of the various councils and committees that were meeting. From 8 o'clock in the morning until late in the evening, various groups were constantly in session. Except for executive sessions, the doors were open to those who wished to enter into any of the discussions and to those who merely wanted to listen. Whether one attended the scientific demonstrations, listened to the lectures, or participated in the meetings of the House of Delegates and of the councils and committees, such as the Judicial Council, Council on Medical Service, Council on National Emergency Medical Service, Council on Medical Education and Hospitals, and Advisory Committee of the State Journal Advertising Bureau, he could see on all sides evidence of great activity in the medical profession. Thus the reports the delegates are carrying back to their state societies will not in any way be regarded as reflecting limitation in scope of medical interests. Instead they will show how physicians today are more determined than ever to meet their responsibilities as citizens and practitioners.

GOVERNMENT MEDICINE—DANGER AHEAD!

DAVE BECK

Executive Vice President, International Brotherhood of Teamsters (AFL).

One of the most critical problems of our time is adequate medical care for all of our people. The real crux—the heart of the matter is: how can we bring adequate medical care within the economic grasp of our citizens?

That this is the problem few will disagree.

But the road to final solution is not through socializing the medical profession.

Our job as American citizens is to meet this challenge of medical care. We cannot meet it with explosive propaganda aimed at destroying the system of free enterprise in the profession of medicine.

The answer to the problem of medical care will not be found in any political panacea or through the development of a super bureaucracy. The answer to the problem will be neither simple nor easy, but it will be found within the framework of our present economic system and our present constitutional safeguards.

GOVERNMENT MEDICINE CANNOT BE TOLERATED

The answer as proposed by advocates of Government-controlled medicine is contrary to our economic structure and goes beyond our traditional guarantees. Any system which proposes

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Read at a dinner meeting given by the Medical Society of New Jersey in honor of the officers of the American Medical Association and members of the House of Delegates during the 100th Annual Session of the American Medical Association, June 11, 1951, Atlantic City, N. J.

such modifications in our way of living and doing things would lead to a dangerous socialistic trend and cannot be tolerated. Such a system would destroy our liberty.

Patrick Henry 175 years ago said that "eternal vigilance is the price of liberty." It is incumbent upon you members of the American Medical Association to be eternally vigilant against panaceas and bureaucracies which would socialize your profession and destroy initiative and freedom not only among your associates today but for generations to come.

The doctor in America has won his present high place in the hearts and spirits of our people through his study, toil, sacrifice and service. The long story of medical progress is written in thrilling chapters of service to humanity—by unknown research workers in the laboratories, by general practitioners in city and country, by the specialists and surgeons who devote their skills to the art of healing.

You have earned the respect of your fellow countrymen over and over through the work you have done on Main Street, in our great cities, on the battlefield, in our hospitals and in the classrooms.

MEDICAL PROGRESS—THE PRODUCT OF INDIVIDUAL INITIATIVE

The medical profession has grown to its present high estate under our system of democratic freedoms. The opportunity to meet the challenges of disease and death has been taken by the doctors using the weapons of science, truth and skill—all wielded within the framework of a free society. That freedom must be preserved. For in that freedom medicine has grown and will continue to grow if there is no interference with individual initiative. The progress of American medicine must not be blocked by the impediments of an uncertain and clumsy bureaucracy.

I have seen the experience of State Medicine in other countries. I have traveled abroad extensively in recent years and have had the opportunity to see at first hand the failure of Socialized Medicine. It is my opinion that if the peoples of any country want Socialism or Communism, that is their business and their decision. We don't want either in America!

The answer lies in Voluntary medical programs—prepaid medical plans. The only question is: how best can we perfect these programs?

We have made progress—and great progress. There has been an ever-increasing consciousness on the part of the American people of the tremendous value and necessity for maximum protection against unforeseen medical costs which arise out of illness or accident both for the wage earner and for his entire family. That a new National health structure is in evolution few will deny.

LABOR UNIONS IN FOREFRONT OF VOLUNTARY HEALTH INSURANCE DEVELOPMENT

There are now more than 72 million people insured under one or another of the prepaid medical plans. Today one of the outstanding jobs in this field is being performed by the labor unions.

Millions of people are covered by welfare plans as a result of labor negotiations during the last two years. An excellent example of this will be found in the Western Conference of Teamsters which includes the 11 Western States. Since July, 1950, we have provided medical coverage for upwards of 180,000 members and their families. The sole purpose of our plan is to protect our members by seeing that funds are available to pay for medical care when the occasion arises. Free choice of doctors is the paramount feature of our plan.

I would never, under any circumstances, be a party to an arrangement of any kind whatsoever, which would deny to any man the right to choose the doctor he wishes to treat him in his hour of need and suffering. Nor would I refuse any man the right to name the medical practitioner in whose hands and skill he has the confidence to place the health, perhaps the lives, of his loved ones.

FREE CHOICE OF DOCTORS, HOSPITALS IS ESSENTIAL

I believe that a tremendous responsibility rests upon all of us to see that we continue and expand and improve our Voluntary medical care program. No one can deny that the Voluntary plans are doing a magnificent job, but there is still much to do. I do not emphasize commercial health and accident coverage, or the Blue Shield or Blue Cross Plans, but any sound plan which is on a Voluntary basis, allowing free choice of doctors and hospitalization. I have noted, too, that the AMA has not recommended one over another, but believes in healthy competition between them. It is on the development of these plans that we must have the maximum cooperation from the medical profession.

This system of Voluntary health care is making a great record in this country. Let us continue the Voluntary way of doing things in America—it is our best protection against any compulsory way. It is compulsion and interference with our individual freedom and initiative which lead to State control—dictatorship, Fascism, Communism. We want none of these in America. We will not permit any of these to take root in the profession of medicine.

I say to the American Medical Association: you have every right in the world to protect the interest of your members and to fight for the preservation of your profession. As you well know, I believe in unions. And you doctors have a pretty good union. I believe in organization—it leads to mutual exchange of ideas, knowledge and information and mutual protection. I believe in it for the laboring man and I believe in it for the doctor. I say to the doctor: join and support your organizations—locally and Nationally—and continue the fight for high medical standards, for your own self-preservation and against this monstrous evil of socialization. More credit and glory to you!

ONLY UNREGIMENTED MEDICINE CAN SERVE PUBLIC EFFECTIVELY

I am convinced, and American experience proves it beyond a doubt, that the medical profession can advance to its highest point of attainment in the service to the public only if it remains free and untrammelled. I am positive that the doctor, in the face of public need and in pursuit of the high ideals of his profession, will make use of his individual freedom, and of his individual ability and initiative, to advance as far as intelligence and skill will permit. He cannot attain those heights of professional achievement under a socialized or regimented system of medicine.

The crux of the issue, I repeat is: how can we bring adequate medical care within the economic grasp of every citizen in the land? The other phases of the medical problem can be more readily solved—wider distribution of doctors, more clinics, more hospitals, more medical research, more preventive medicine—all of these are important and programs for their solution are progressing rapidly.

This problem of bringing medical care to all of the citizens of this country is one of the most pressing, and at the same time, most troublesome problems we have ever faced. It is difficult to solve because it involves two fundamental concepts which some say cannot be reconciled: first, free enterprise, the right of the doctor to practice his profession as a free man in a free society, and—second, the right of the people of the Nation to have available to them and within their economic reach, all of the medical care and attention which are necessary to keep them in the highest state of health known to medical science.

NO CONFLICT BETWEEN FREE ENTERPRISE AND ADEQUATE HEALTH CARE

I deny that there is any insoluble conflict between these two concepts. We must reconcile them to solve our problem. We must find some plan whereby free enterprise is preserved and wherein the health of the Nation is safeguarded and strengthened. Socialized or Federalized medicine is not the answer. The Voluntary way is the American way.

I believe in the maximum of liberty for all Americans, and in their right to rise to high levels of accomplishment, through their own skill, initiative and intelligence. I say that we have built this great Nation through individual initiative and intelligence. We have made mistakes in the past—we will make them in the future, but let us never make the mistake of socializing the medical profession. We have been born as a great people and we will continue to thrive as a great people only under a system of free enterprise—free for the business man, free for labor, free for the doctors and free for all of our people.

MEDICAL LEGISLATION

STATE

California

Bills Introduced.—H. R. 195, proposes that the Assembly Interim Committee on Finance and Insurance be directed to study and analyse all facts relating to the furnishing of **prepaid medical, surgical, hospital and other related services,** especially by unlicensed, unregulated and nonprofessional persons and organizations. A. 2673, to amend the Business and Professions Code, proposes to permit the use of the **injunctive process** to restrain violation of such code. A. 2924, to amend the **chiropractic** act, proposes, among other things, to define unprofessional conduct as the procuring, aiding, or abetting in the procuring of criminal abortions; the paying for steering patients into one's office; obtaining a fee on the assurance that a manifestly incurable disease will be made entirely well; the wilful betrayal of professional secrets of a patient to the detriment of such patient; chiropractic advertising which is untrue or misleading; conviction of any offense involving moral turpitude; wilful neglect of a patient in a critical condition. S. 731, to amend the health and safety *code, proposes to require hospitals to keep a record of the administration* of **hypnotic drugs,** including the amount given, the type, the date, and the name and address of the person to whom administered.

Bill Enacted.—A. 3412, was approved June 1, 1951. It amends the Revenue and Taxation Code by specifically providing that the producers of **X-ray films** for the purpose of diagnosis are the consumers of materials and supplies used in the production thereof.

Connecticut

Bill Enacted.—S. 48, has become Public Act No. 78 of the Acts of 1951. It provides for the creation of a **board of examiners of hypertrichologists** *and defines hypertrichology as the removal of superfluous hair by electrical* or other methods approved by the board of examiners.

Delaware

Bill Enacted.—S. 248, was approved June 5, 1951. It amends the **Workmen's Compensation Act** by providing that if an employer shall, upon application made to him, refuse to furnish reasonable surgical, medical, and hospital services, medicines, and supplies, the employee may procure the same and shall receive from the employer the reasonable cost thereof.

Florida

Bills Enacted.—H. 3, became law without approval June 11, 1951. It provides regulations for the employment of **county medical examiners** and sets forth the duties of such medical examiners and the circumstances under which autopsies may be permitted. H. 8, became law without approval June 11, 1951. It provides regulations for the issuing of licenses to practice **physical therapy** by the State Board of Medical Examiners. Physical therapy is defined as the treatment of disability injury and disease by non-medical means comprising the use of massage, therapeutic exercises, and the physical, chemical, and other properties of heat, light, water, and electricity (except roentgen rays, radium, and electrosurgery). H. 193, became law without approval, June 11, 1951. It provides amendments to the **Chiropractic Act** relating to grounds for revocation of a license. Among other grounds set forth in the new law which would justify the revocation of a chiropractic license is that the licentiate permits persons not licensed to practice chiropractic in the state to set up in his office what is commonly called and termed "Traveling Clinics" and permits these unlicensed persons to practice chiropractic under color of the licentiate's certificate or to counsel or advise persons concerning the cure or treatment of any disease or body ailment. H. 194, became law without approval, June 11, 1951. It provides that no person shall operate a **chiropractic hospital** without first obtaining a license from the Florida State Board of Chiropractic Examiners, permitting him so to do. H. 799, was approved June 9, 1951. It directs the tuberculosis board to provide *adequate facilities for the* ***compulsory isolation*** *and treatment of persons* afflicted with tuberculosis. H. 1047, became law without approval, June 11, 1951. It provides that in any hospital or hospitals supported in whole or part by taxes collected in Bay County, Florida, and operated in that county, all citizens and tax payers of the county shall have the right to be admitted to such hospital or hospitals, and in the management of such hospital or hospitals **no discrimination shall be made against any physician or surgeon,** provided such physician or surgeon has been admitted to the general practice of medicine or surgery under the laws of the state, and all such physicians or surgeons shall have equal privileges in treating patients in said hospital or hospitals. The law further provides that the Board of Trustees shall organize a staff of physicians and surgeons composed of every practicing physician and surgeon in the county, and such physicians and surgeons shall hold their position on said staff as long as they comply with the rules and regulations laid down by the Board of Trustees. H. 1332, became law without approval, June 11, 1951. It authorizes certain judges and county solicitors throughout the state to secure the **services of a physician in connection with the investigation of crime** or under circumstances where such services are deemed necessary for the investigation of crime, and it fixes the fee to be paid to such physician for the services which may be rendered. H. 1385, became law without approval, June 11, 1951. It authorizes the Board of County Commissioners of Saint Lucie County to enter into contracts which would provide for its employees and the *members of their family* **medical, surgical, hospital and similar costs** resulting from illness or injury to such persons. H. 1550, became law without approval, June 11, 1951. It authorizes the board of county commissioners of certain size counties throughout the state to provide and secure insurance for its employees and the *members of their family which would provide funds to defray* **medical, surgical, hospital and similar costs** resulting from the illness of, or injury to, such persons. H. 1578, became law without approval, June 11, 1951. It authorizes the Board of County Commissioners of Broward County to appoint and employ a **County Medical Examiner** who shall be a licensed practicing physician or surgeon in the state. The law sets forth the powers and duties of such County Medical Examiner relating to autopsies and investigation of death. S. 385, was approved June 7, 1951. It provides regulations whereby persons found to have **active tuberculosis** may, under certain circumstances, be *committed to a state hospital* for treatment. S. 672, became law without approval, June 11, 1951. It provides that any condition or *impairment of health of municipal firemen* caused by **tuberculosis, hypertension or heart disease,** shall be presumed to have been suffered in line of duty unless the contrary is shown by competent evidence, provided that such firemen shall have successfully passed a physical examination on entering into such service which failed to reveal any evidence of such condition. S. 876, became law without approval, June 11, 1951. It authorizes the City Council of Miami to establish a **health plan** for officers and employees of the city and their families. S. 946, became law without approval, June 11, 1951. It authorizes the Board of County Commissioners of Alachua County, to provide a plan for **group insurance, dismemberment, accidental death, hospitalization, surgery** and **medical expense insurance** for employees and members of their family. S. 1053, became law without approval, June 11, 1951. It provides circumstances whereby **hospitals may obtain a lien** for all reasonable charges for hospital care, treatment and maintenance of ill or injured persons upon any and all causes of action accruing to such persons or their legal representatives.

Illinois

Bill Introduced.—S. 718, proposes to authorize the use of the **injunctive process** to prohibit the unlicensed practice of any profession or occupation in the state which requires a license from a state board.

Massachusetts

Bills Introduced.—H. 2554, proposes to require the committee on education to sit during the recess of the legislature to make studies relative to the establishment of a **medical school** by the University of Massachusetts. H. 2568, proposes to authorize the board of registration in medicine to examine applicants for licenses to practice **physical therapy** and to grant licenses therefor. Physical therapy is defined as the treatment of any bodily or mental condition of any person by the use of the physical, chemical and other properties of heat, light, water, electricity, massage, and active and passive exercise. The use of roentgen rays and radium for diagnostic and therapeutic purposes and the use of electricity for surgical purposes, including cauterization, would not be authorized.

Michigan

Bills Enacted.—H. 214, has become Public Act No. 175 of the Acts of 1951. It amends the narcotic law by fixing penalties for the **sale of narcotics to minors.** H. 368 has become Public Act No. 166 of the Acts of 1951. It provides an appropriation for the construction of a southwestern Michigan **tuberculosis sanatorium** somewhere in or near the city of Kalamazoo.

Pennsylvania

Bills Introduced.—H. 1259, proposes the enactment of a **uniform narcotic drug act.** H. 1314, proposes an appropriation for the purpose of reimbursing hospitals for the cost of **training student nurses** in approved schools of nursing. H. 1376, proposes to increase the size of the **Advisory Health Board** from seven (7) to ten (10) and to provide that five (5) of the members of such board should be doctors of medicine. H. 1413, proposes to make it a felony to furnish or give **narcotic drugs to a minor.** H. 1428, proposes amendments to the pharmacy act among which is a **new definition of the term "prescription"** which would mean an order for drugs or medicines or combinations or mixtures thereof written or signed by a duly licensed physician, dentist or veterinarian or other medical practitioner licensed to write prescriptions intended for the treatment or prevention of disease in man or animals.

Bills Enacted.—H. 368 was approved May 22, 1951. It is a law providing for the licensing of and regulating of **professional nurses.** H. 60, was approved May 24, 1951. It provides that in any proceeding to establish paternity the court on motion of amendment shall order the mother, her child and the defendant to submit to one or more **blood-grouping tests** by a duly qualified physician to determine whether or not the defendant can be excluded as being the father of the child and the results of such tests may be received in evidence in cases where definite exclusion of the defendant is established.

South Carolina

Bill Enacted.—H. 1039 was adopted January 17, 1951. It provides for the creation of a committee to investigate and make a study and research of the South Carolina **unemployment compensation law** with particular attention to the insurance rates in South Carolina and other jurisdictions.

Vermont

Bill Introduced.—H. 386, proposes the appointment of a special commission to investigate the conditions existing at the **Vermont state hospital.**

Bills Enacted.—H. 229 was approved April 13, 1951. It requires superintendents of schools to cause a qualified person to **test the hearing** of all pupils under his supervision in grades one, two, three, five, seven, and nine. The prior law permitted such examination to be made by teachers. H. 261, was approved May 18, 1951. It provides for the establishment of an **alcoholic rehabilitation commission** to assist in the control of the effects of alcoholic beverage consumption by the establishment of a state program for medical and other scientific care and treatment and rehabilitation of alcoholics. H. 270, was approved April 10, 1951. It is an **occupational disease law.**

Prepared by the Bureau of Legal Medicine and Legislation.

PROCEEDINGS OF THE ATLANTIC CITY SESSION

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL SESSION IN ATLANTIC CITY, N. J., JUNE 11-15, 1951

The actions of the House of Delegates at the Atlantic City Session are herewith abstracted so that the readers may have this information in digest form. The official proceedings will be made available, as in the past, in a booklet, which will be sent to all members of the House of Delegates and officers of the American Medical Association by the Secretary. This booklet will not be available for several weeks.—Ed.

Invocation

Rev. Harvey Bennett, Pastor of First Presbyterian Church of Atlantic City, delivered the following invocation:

Almighty and Eternal God, Infinite Architect of the Universe, by whose power the worlds were formed, by whose laws the planets run their courses, by whose inspiration scholars have searched for truth, prophets preached and poets penned their poems of life, to whom all hearts are open, all desires known, and from whom no secrets are hid, whose excellency is more than we can know, yet Thou art all that we adore. From the confused voices of our life we turn to Thy silent presence. From Thy darkened skies we venture forth into Thy pure and infinite light. In Thy light, may we see light. Through Thine infinite wisdom may we have that wisdom which shall discern truth from falsehood, right from wrong, justice from injustice.

O God, our heavenly Father, we commend to Thy divine providence this noble company of physicians, delegates to the American Medical Association, as they have assembled themselves in our city by the sea for their hundredth annual session. We are conscious that Thou hast blessed their consecrated efforts in the past as they have diligently and earnestly labored to alleviate pain and suffering by the touch of their skillful hands, administered in love to the afflicted bodies of mankind. As they follow in the footsteps of the Divine Physician of Life, and as they diligently search, may they find new methods of aiding those who suffer. Give to them a new sense of their responsibility and added strength for the tasks that lie before them.

And O God, we ask these blessings upon Thy servants who go about night and day alleviating suffering, in the name of Jesus Christ who while on the earth went about healing the broken bodies of men, giving hope to the hopeless, and life to the lifeless. Amen.

Adoption of Proceedings of Cleveland Clinical Session

Dr. George F. Lull, Secretary, presented the Proceedings of the Cleveland Clinical Session as printed and distributed to the members of the House of Delegates, which on motion of Dr. Val H. Fuchs, Louisiana, seconded by Dr. Charles H. Phifer, Illinois, and carried, were adopted as published.

Roll Call

The Secretary, Dr. George F. Lull, called the roll and announced that more than a quorum had responded.

Address of Speaker

The Vice Speaker, Dr. James R. Reuling, took the chair while Dr. F. F. Borzell, Speaker, presented the following address, which was referred to the Reference Committee on Reports of Officers, with the exception of the portion dealing with the creation of a new reference committee which was referred to the Reference Committee on Amendments to the Constitution and By-laws.

Members of the House of Delegates:

We are opening the One Hundredth Annual Session of the House of Delegates of the American Medical Association. My first task is to pay tribute to the passing of Dr. Roy Fouts who has gone to his reward since we last convened. Dr. Fouts was a member of this House for many years, the last few of which he served as your Speaker. We mourn his loss as a man, as a statesman, as a staunch supporter of and fighter for those high principles on which our profession is based. He rightfully belongs in that great gallery of medical men whose services to organized medicine have laid firm foundations on which we can build with assurance that the structure will withstand the bitter winds of adversity and the strife of a troubled world. We can, with sincerity, say that he fought a good fight and he kept the faith.

I must also inject another note of sadness by the announcement of the death of one who has served this House and the American Medical Association for many years. Miss Jewel Whelan passed away just a few weeks ago. She was to retire after this Session after many years of faithful and devoted service to the American Medical Association.

A centennial anniversary should be an occasion for reminiscences and review of the accomplishments of the organization but this is neither the time nor the place for such pleasant pastimes.

The passing years have not eased our tasks or reduced our responsibilities. On the contrary, because our predecessors have built so well, we find ourselves in the forefront of a struggle for the preservation of the very fundamentals of those principles which make life worth living. There have been times when clouds were dark and it looked as though our structure would crumble, but I say to you in all sincerity that the American Medical Association was never stronger than it is today.

A review of the activities of this body through the years reveals a steadfast adherence to sound principles, high ideals, and an unswerving code of ethical conduct of which we need not be ashamed. Today the world looks to this House of Delegates as the true voice of American medicine. Throughout the years every action taken by this House was measured in terms of what would be best for those we serve. We have not hesitated to modify our positions if we found in so doing we were improving the quality of medical service to the people.

The officers we have elected to direct the affairs of the Association voice only the policies this House adopts. We, in turn, are the elected representatives of almost the entire profession of America. Any inference that a handful of self-interested individuals tells us what to think is so contrary to the history of the body as to constitute a libelous slander on the integrity and intelligence of the vast majority of the physicians of the country.

You have each just within the last few weeks received a communication which implied that you are naive children who have been led astray. I refer to the letter from the Committee for the Nation's Health under date of May 22:

"In order that the medical profession will not be justified in feeling that President Henderson had spoken accurately because no denial has been made in the medical press by the Committee for the Nation's Health, the Committee sends a copy of its letter to President Henderson with the hope that the officers of the American Medical Association and of the state societies will be glad to enlighten the medical profession even if Dr. Henderson does not wish to do so."

Dr. Henderson certainly needs no defense for his courageous and untiring leadership these many years, but is there not in this letter a semblance of invidious reflection on the integrity and intelligence of the House? I apologize for having possibly digressed from the established policy that the Speaker should not make a speech but in justification I can only say that as your Speaker and as a member of this House for sixteen years I most emphatically defend the House against any implied reflection on its intelligence.

There are two events which mark the opening of this One Hundredth Session which call for special attention.

The first is the initial attendance, as special delegates, the first representatives of the newborn Student American Medical Association. May I, at this time, introduce to the House:

Warren R. Mullen, of Jackson, Mich., a student at the University of Michigan Medical College and President of the Student American Medical Association.

Harry W. Sandberg, of Moline, Ill., a student of Illinois College of Medicine, Chicago. He is Vice President of the Student American Medical Association.

I had hoped this morning to introduce the new Surgeon General of the Army, Dr. George Armstrong, who expected to act as delegate from the United States Army but who because of illness was compelled to ask the Deputy Surgeon General Paul Streit to serve.

It has been necessary for a few years past to request the House for authority to appoint a special Reference Committee on Emergency Medical Service. This must be done again at this Session. It seems, however, that the emergency has become a permanent condition. This House has authorized a new section on Military Medicine which is receiving enthusiastic support. In order, then to provide a reference committee that can consider the many problems involving military medical affairs and to permit the advance publication of the personnel of this committee with other standing reference committees, the Speaker would recommend that the House approve an amendment to establish a new reference committee to be known as The Reference Committee on Medical Military Affairs and Civil Defense.

REFERENCE COMMITTEES OF HOUSE OF DELEGATES

The reference committees and appointments for this Session are as printed in the Handbook including changes, as follows:

SECTIONS AND SECTION WORK:

Willard A. Wright, *Chairman*, North Dakota
Percival Bailey, Section on Nervous and Mental Diseases
Harvey B. Matthews, Section on Obstetrics and Gynecology
Norman S. Moore, New York
Arthur A. Brindley, Ohio

RULES AND ORDER OF BUSINESS:

Walter E. Vest, *Chairman*, West Virginia
Dexter H. Witte, Wisconsin
John M. Porter, Kansas
William A. Hyland, Michigan
James P. Wall, Mississippi

REPORTS OF BOARD OF TRUSTEES AND SECRETARY:

Edgar V. Allen, *Chairman*, Section on Experimental Medicine and Therapeutics
Val H. Fuchs, Louisiana
Jacob W. Bird, Maryland
Charles G. Hayden, Massachusetts
Robert E. Schlueter, Missouri

MEDICAL EDUCATION AND HOSPITALS:

William Bates, *Chairman*, Pennsylvania
James S. Stevenson, Oklahoma
Joseph F. Londrigan, New Jersey
Henry S. Ruth, Section on Anesthesiology
Harlan A. English, Illinois

LEGISLATION AND PUBLIC RELATIONS:

Leo G. Christian, *Chairman*, Michigan
Hugh H. Hussey Jr., District of Columbia
J. Paul Jones, Alabama
Denver M. Vickers, New York
William W. Skipp, Ohio

HYGIENE AND PUBLIC HEALTH:

Louis M. Orr II, *Chairman*, Florida
W. Palmer Dearing, United States Public Health Service
Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health
Charles F. Strosnider, North Carolina
Herbert H. Bauckus, New York

AMENDMENTS TO CONSTITUTION AND BY-LAWS:

Robertson Ward, *Chairman*, California
Jesse D. Hamer, Arizona
Everett P. Coleman, Illinois
George Braunlich, Iowa
J. B. Lukins, Kentucky

REPORTS OF OFFICERS:

Britton E. Pickett Sr., *Chairman*, Texas
George M. Fister, Utah
John M. Emmett, Virginia
Harold F. R. Brown, New York
William F. Costello, New Jersey

CREDENTIALS:

H. Russell Brown, *Chairman*, South Dakota
Karl S. J. Hohlen, Nebraska
Charles L. Farrell, Rhode Island
Charles T. Stone Sr., Section on Internal Medicine
Everett C. Fox, Section on Dermatology and Syphilology

INDUSTRIAL HEALTH:

Earle M. Chapman, *Chairman*, Massachusetts
Ralph A. Johnson, Michigan
Bertie O. Edwards, North Carolina
Carlton E. Wertz, New York
James Z. Appel, Pennsylvania

EXECUTIVE SESSION:

Homer G. Hamer, *Chairman*, Indiana
Howard K. Petry, Pennsylvania
Donald Cass, California
Willis I. Lewis, Illinois
Charles J. Kickham, Massachusetts

INSURANCE AND MEDICAL SERVICE:

William R. Brooksher, *Chairman*, Arkansas
Maurice J. Dattelbaum, New York
John W. Green, California
William H. Halley, Colorado
Benjamin H. Minchew, Georgia

MISCELLANEOUS BUSINESS:

Andrew A. Eggston, *Chairman*, New York
Thomas J. Danaher, Connecticut
Alfred S. Hartwell, Hawaii
Hoyt B. Woolley, Idaho
Clifford C. Sherburne, Ohio

TELLERS:

George S. Klump, *Chairman*, Pennsylvania
Eugene F. Hoffman, California
Robert H. Hayes, Illinois
Deering G. Smith, New Hampshire
Carl H. Gellenthien, New Mexico

SERGEANTS AT ARMS:

Hollis E. Johnson, *Chief*, Section on Diseases of the Chest
John K. Glen, Texas
Charles M. Hamilton, Tennessee

The Speaker respectfully requests the authorization of a Special Reference Committee on Emergency Medical Service as follows:

J. Arnold Bargen, *Chairman*, Minnesota
Frank H. Krusen, Section on Physical Medicine and Rehabilitation
L. Howard Schriver, Ohio
Elmer Hess, Pennsylvania
Raymond L. Zech, Washington
Paul Streit, U. S. Army
Clarence J. Brown, U. S. Navy
Dan C. Ogle, U. S. Air Force
George Lyon, Veterans Administration

IN MEMORIAM

The Speaker read the list of names of former members of the House of Delegates and Officers of the Association who had passed away during the past year, after which the members of the House rose in respect to the departed members and officers:

Report of Reference Committee on Reports of Officers

Dr. B. E. Pickett Sr., Chairman, presented the following report which was adopted section by section and as a whole:

The Speaker's tribute to the memory of Dr. Roy Fouts, a former Speaker of this body, well expresses the sentiments of this House of Delegates.

Your reference committee commends the forceful remarks of the Speaker, especially in his discussion of the steadfastness, high ideals and ethical conduct of the American Medical Association through the years. It is the sense of this committee that we cannot better express that which we would convey to you than by quoting a paragraph from the Speaker's remarks:

"A review of the activities of this body through the years reveals a steadfast adherence to sound principles, high ideals, and an unswerving code of ethical conduct of which we need not be ashamed. Today the world looks to this House of Delegates as the true voice of American medicine. Throughout the years every action taken by this House was measured in terms of what would be best for those we serve. We have not hesitated to modify our positions if we found in so doing we were improving the quality of medical service to the people."

The Speaker's treatment of the situation involving a letter from the Committee for the Nation's Health properly interprets the position of the American Medical Association on this question, and your committee agrees in its entirety with the support of President Henderson in this matter.

Report of Reference Committee on Amendments to Constitution and By-Laws

The Reference Committee on Amendments to Constitution and By-Laws presented the following report which was adopted and the By-Laws so amended:

The Speaker, in his address to the House at the opening meeting, suggested the establishment of a Reference Committee on Military Affairs. This was to eliminate the necessity for the appointment of a special reference committee at each session of the House to handle these subjects. This had been anticipated by the Interim Committee on Constitution and By-Laws, and in Dr. McCarthy's report he had moved for a change in the By-Laws, as follows: Add paragraph (14) "Medical Military Affairs, to which will be referred all matters relating to military affairs and civilian defense." Division 3, Chapter X, Section 5 (D).

Resolution on Death of Dr. Roy W. Fouts

Dr. James P. Wall, Mississippi, presented the following resolutions, which were adopted on motion of Dr. Wall, seconded by several delegates and carried by a standing vote:

Life, with its ever changing cycle, brings experiences of varied kinds—some fraught with gladness, others laden with sadness. Man has a time to come and a time to go, yet his tenure is commensurate not with years spent, but rather in deeds wrought. In the course of human events the passing from God's footstool is to be expected, and though mindful of the immutability of such a law, mere mortals are never prepared for the inevitability of this denouement. It is true that posthumous glory soon sinks into forgetfulness, it is equally true that a good man lives long after he has dropped into the tongueless silence of a dreamless sleep.

An estimate of one's character is very apt to be biased by personal relation and association, and a true evaluation is merged into the maze of circumstance and lost in the exigencies of time. Nevertheless, there has come to this House of Delegates the grim realization that it suffered a great sorrow when death came, as it must come to all, to Dr. Roy W. Fouts on March 27, 1951.

Dr. Fouts was all the term "gentleman" connotes. Gentle, without fear; meek, without repining; modest, without prudery; gifted, without pedantry and friendly, without effusion. No one ever had the temerity to question his motives, impugn his integrity, asperse his character or doubt his courage. Unswayed by popular clamor he kept the even tenor of his way, possessed of a fine intellect, a wonderful calmness, a rare poise, a kindly disposition, an unusual sense of humor, a clear understanding of his vocation and a due appreciation of the weightier matters of life.

As a member, Vice Speaker and Speaker of the House of Delegates of the American Medical Association, he was at all times considerate of the rights of others, fair in his rulings and impartial in the conduct of these offices. As Vice President of the American Medical Association, being a firm believer in the righteousness of its cause, he worked in and out of season to promote those standards that have made American medicine the standard of the world.

Though not unmindful that expressions of condolence often fall far short of their intended meaning and that many times words of sympathy are mere emptiness, this House, knowing Dr. Fouts as it did, knows it has suffered a great loss, and it is seeming and fitting at this time that it should take cognizance of the passing of our confrere; therefore be it

Resolved, By the House of Delegates of the American Medical Association in Annual Session in Atlantic City, New Jersey, June 11, 1951, that in the slipping away of Dr. Roy W. Fouts this body has lost a stalwart defender of its most precious tenets; organized medicine, a warrior worthy of his steel; the community an upright citizen, and the Healing Art, an exponent of whom it may truly be said: "He was a workman that needeth not be ashamed"; and be it further

Resolved, That a copy of these resolutions be forwarded to the family of our deceased comrade and friend.

Photograph of House of Delegates

An official photograph of the House of Delegates was taken.

Distinguished Service Award to Dr. Allen O. Whipple

Dr. Louis H. Bauer, Chairman, Board of Trustees presented the report of the Committee on Distinguished Service Award of the American Medical Association which submitted five names to the Board of Trustees, from which the Board selected the following three in alphabetical order: Maj. Gen. Harry G. Armstrong, Surgeon General of the U. S. Air Force; Dr. Torald Sollmann, Cleveland; and Dr. Allen O. Whipple, New York City. The result of the first ballot for recipient for the Distinguished Service Award was as follows:

Dr. Armstrong, 61; Dr. Sollmann, 50 and Dr. Whipple, 71.

The Speaker announced that since there was no majority, the one receiving the lowest number of ballots would be eliminated and the House would proceed to vote on the other two. Ballots were again distributed for a vote for either Dr. Armstrong or Dr. Whipple.

Dr. George S. Klump, Chairman of the Tellers, reported that Dr. Armstrong had received 80 votes and Dr. Whipple 98, and the Speaker declared Dr. Allen O. Whipple, New York, the recipient of the Distinguished Service Award for 1951. (See THE JOURNAL, June 23, 1951, page 735.)

Contribution to American Medical Education Fund by American College of Radiology

Dr. Warren W. Furey, Illinois, on behalf of the American College of Radiology, presented to the House a check of that organization for $2,000.00 in contribution to the American Medical Education Fund, which was received by the Speaker with thanks to the College.

Address of Past President James E. Paullin

Dr. James E. Paullin, Past President, addressed the House as follows:

Mr. Speaker, Members of the House of Delegates: A little over a year ago this House passed a resolution extending to Mrs. Paullin and me its sympathy and prayers for a speedy recovery from an automobile accident which happened to us. This resolution was delayed in reaching me and I did not have an opportunity to express our deep and abiding pleasure at receiving thoughts from such a noble organization. While my thanks and those of my good wife are delayed in reaching you, I wish to present myself today in person in answer to your prayers, recovered wholly, and I am delighted to be back with you. Thank you.

Report of Reference Committee on Rules and Order of Business

Dr. Walter E. Vest, Chairman, presented the following report and moved its adoption. The motion was seconded and carried, after which the Speaker announced that the chairmen of the reference committees would meet with the Vice Speaker immediately on adjournment of the meeting:

Mr. Speaker and Gentlemen of the House: Your Committee on Rules and Order of Business offers the following preliminary report: That we recess at 1:00 p. m. today and reconvene at 2:30 p. m.; that all committees (and that means all, every committee; and we want every member of every committee there) meet for hearings promptly at 9:30 a. m. Tuesday, and that the House will recess this afternoon until 9:00 a. m. Wednesday.

Your committee sees now no reason for an executive session. If the occasion should arise, we will consider that of course; but at present we see no reason for it.

Address of the President, Dr. Elmer L. Henderson

Dr. Elmer L. Henderson, President, presented the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker, Members of the House of Delegates:

For the past two and one-half years we of the medical profession have devoted a great deal of time and energy to our battle against the advocates of socialized medicine. Despite the intensity of that battle, the American Medical Association not only has continued, but has accelerated, its many positive activities designed to advance the health of the nation. With the socialistic threat now dispelled, at least temporarily, I believe that this is a good time to remind both doctors and the public of the basic, long-range objectives of this organization. Stated briefly, those objectives are to promote the national health through scientific activities, to foster and maintain high standards of medical practice, and to solve health problems in a manner most conducive to the public welfare.

The American Medical Association has a wide range of interests and programs based on those positive objectives. Today, therefore, in my last report to you as President of the American Medical Association, I should like to touch on a number of developments or activities aimed at our long-range goals.

1. We have taken recent steps to make possible a concerted, nationwide effort to demonstrate how private initiative can meet the financial problems of American medical schools. On last May 16 the American Medical Education Foundation was merged with the National Fund for Medical Education, of which Mr. Herbert Hoover is honorary chairman.

The American Medical Education Foundation will continue to solicit funds from physicians, medical organizations and others in the field of medicine. The National Fund for Medical Education will concentrate its money-raising efforts on lay groups, business, industry and all other potential private donors outside the medical profession. All funds collected will be channelled to the National Fund for Medical Education, which will serve also as the distributing agency. It is anticipated that the first distribution of funds to medical schools will be made on or about July 1 of this year.

I urge all American doctors to give maximum support to the continuing drive for private aid to medical education. This new fund-raising consolidation marks only the beginning of an accelerated, large-scale offensive to show that American methods can provide the nation's medical schools with both solvency and freedom.

2. We are cooperating actively with other professional groups to meet the problems of hospital standardization. After nine months of careful study and planning with the American College of Surgeons, the American College of Physicians and the American Hospital Association, a plan has been formulated relative to the accreditation of hospitals. This program, it should be understood, has no relationship to the intern and residency training program. The plan is covered in detail in the Board of Trustees' report. The committee which represented the American Medical Association believes that it is an excellent solution of the problem.

3. We are placing particular emphasis on efforts to promote the maximum growth and development of voluntary health insurance. Our objective is low-cost, comprehensive protection, available on a sound medical and financial basis to every American who needs it or wants it. To this end, our Council on Medical Service and other interested American Medical Association departments are cooperating with medical societies, hospitals, insurance companies, labor unions, business and industrial concerns, farm and fraternal organizations, and all other sound agencies in the field. As a result of the efforts by all concerned, in the direction of both increased enrolments and improved coverage, it is estimated that close to 80 million Americans will be protected by some form of voluntary health insurance at the end of this year.

4. We are advocating the establishment and effective use of grievance committees to iron out misunderstandings between physicians and patients, and we are giving active assistance to state and county medical societies to further that objective. Such programs now are in operation in at least three-fourths of the states and in more than 400 counties.

5. We are encouraging and aiding the establishment of night and emergency call systems, to assure 24-hour medical service in local communities. The number of such plans set up by county medical societies increased from 60 in 1948 to 329 in January of this year, and we expect to stimulate a sharp increase in that rate of growth during the next year or two.

6. We are urging physicians and medical societies to play a leading role in the development and operation of community health councils, to solve local health problems and improve local health facilities. As a result, there now are some 1,200 community health councils or committees and 30 state health councils.

7. We are working constantly to assure an adequate supply of properly trained physicians, and there is no better evidence of that work than the fact that the United States has more doctors in proportion to population than any other country except Israel. Furthermore, we also are working constantly to improve the distribution of physicians, and we are urging every state medical association to adopt an active program for placing doctors in communities which need them. In this connection, incidentally, the number of doctors seeking location now exceeds the number of communities looking for doctors.

8. We are encouraging and promoting increased interest in general practice and greater emphasis on the training of good family doctors in the medical schools and in the scientific meetings and activities of the American Medical Association and other professional organizations. Recent surveys by the Council on Medical Education and Hospitals show that general practice is attracting an increasing percentage of medical students and young physicians.

Because of this definite trend, and to help stimulate it further, I have a suggestion regarding the annual award given to the general practitioner of the year. In the past, as you know, all of the recipients of the annual medal have been fine, outstanding men beyond middle age. But there also are many excellent young doctors in general practice, and their number is increasing. Therefore, I recommend that we establish two annual awards for outstanding general practitioners, one to a member over 50 years of age, and the other to a member under 50.

9. We are continuing and expanding the many scientific activities which make the American Medical Association the focal point of American health progress in this era of dramatic, fast-moving advance. Playing an important part in this work, both to inform the medical profession and protect the public, are the Council on Pharmacy and Chemistry, the Council on Physical Medicine and Rehabilitation, the Council on Foods and Nutrition, the Bureau of Investigation and a wide variety of additional bureaus and committees.

10. We are keeping doctors up to date on the latest medical advances by means of the annual and clinical sessions of the American Medical Association, THE JOURNAL and other scientific publications of the association, and an extensive library and informational service. At the same time we are keeping the public informed through the lay publications and many other activities of the Bureau of Health Education. Speaking of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, you will be interested to hear that its weekly circulation has increased from 137,000 to 168,000 since establishment of the annual dues payment including a JOURNAL subscription.

At this point I would like to commend our Editor, Dr. Austin Smith, and his staff for the outstanding job they have done in the improvement not only of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION but also of the special journals.

11. We are continually working with both employers and employees to reduce health hazards in industry, and our Council on Industrial Health sponsors an annual congress to spur progress in that field.

12. We are doing a great deal of special work through our Committee on Rural Health, which also holds an annual conference devoted to the solution of health and medical care problems in rural areas.

13. We are working to bring about a closer relation between medical affairs and federal activities by means of our Washington office, the Committee on Legislation and the Bureau of Legal Medicine and Legislation.

14. We are cooperating with the federal government, the armed forces and all other interested agencies—through our Council on National Emergency Medical Service—to assure a proper supply and distribution of doctors to serve the interests of national defense and security.

15. We are taking an active part in the international activities of the World Medical Association, which I have the honor of heading, and American doctors are a major factor in the financial support of that worthy instrument for aiding world cooperation.

Despite the fact that I have touched on 15 different areas of activity, I have only scratched the surface of the American Medical Association's many and varied projects in the scientific, professional, social, and economic phases of medicine. It is our determination that these positive activities will continue to expand, in pace with the tremendous progress of this free nation, and for the benefit of all the American people. That is why we have been fighting for two and one-half years to save American medicine from the deadly hand of bureaucratic control. And in that connection, before I close, I have an announcement to make concerning the National Education Campaign.

Your Campaign Coordinating Committee and Board of Trustees, acting on the recommendation of Clem Whitaker and Leone Baxter, the campaign directors, have decided to terminate the National Education Campaign at the end of this year. We agree that the great campaign success of the past two and one-half years, plus the additional progress expected during the remainder of 1951, in cementing our now strong position with the public, will make it unnecessary to continue an intensive program in 1952.

As we approach the end of the National Education Campaign, however, we should broaden the permanent public relations program carried on by the regular staff of the American Medical Association. This should be done, not only to hold the ground already gained, and to ward off any new attacks which might be made, but also to continue the positive educational work which is so necessary for the long-range future of American medicine.

As of now, we have defeated the efforts to socialize medicine through the enactment of compulsory health insurance, and we have moved a long way toward the ultimate goal of proving that voluntary methods can solve American medical care problems.

The progress in our National Education Campaign and in related activities represents a tremendous amount of hard work by your American Medical Association officers and staff, by the Coordinating Committee and Board of Trustees, by the officers and lay staffs of the state and county medical societies and by the women's auxiliaries. Thousands of individual doctors throughout the country have given time and effort in almost superhuman proportions to help make medicine's campaign successful.

As Chairman of the Coordinating Committee and the Board of Trustees, and then for the past year as President, I have appreciated deeply your cooperation, and that of all American doctors, in the great mutual tasks which we have had to perform. In particular, there are no words to express my personal appreciation for the brand of close cooperation in many difficult times exhibited by the hard working and dedicated members of your Campaign Coordinating Committee and the Board of Trustees. They deserve this Association's sincere gratitude for a difficult job well done.

As a final personal word, in my last formal address as your President, I want to say that it has been a great honor and a stimulating experience to have been a leader in the American Medical Association during the recent past. And if I may steal a bit from the famous address by General MacArthur, I should like to say this, as an old soldier in the ranks of medicine: I do not intend to die very soon, and I do not intend to fade away; if the fight flares up again, I shall be glad to be a private in the rear ranks.

NATIONAL EDUCATION CAMPAIGN

This is not part of my formal address, but I should like to take this opportunity to make one more statement regarding the National Education Campaign. I want to say that no one has worked as hard, as long, and with such high devotion to the cause of American medicine, as have Clem Whitaker and Leone Baxter, the active campaign directors. Since January, 1949, they have lived and breathed medicine's fight for freedom 24 hours a day, and seven days a week. They have given us not only inspired direction, ability, and experience in public relations and not only tremendous physical and mental effort but also a heart-and-soul dedication to our battle and an unshakable confidence in our ability to win.

It has truly been two and a half years of "blood, sweat and tears" for Whitaker and Baxter, but they have never faltered, they have never given up—they have brought us through with banners flying, and they have paved the way for still more significant progress during the remainder of the campaign. As Chairman of the Coordinating Committee, I have been in almost daily contact with them excepting when I was beyond the boundaries of the United States and I personally know of the many problems and difficulties with which they have had to contend and of their unselfish devotion to our cause. At this point I wish to express the deep appreciation of the medical profession and my personal appreciation to Clem Whitaker and Leone Baxter for their outstanding work in behalf of freedom in medical practice.

On motion of Dr. Walter E. Vest, West Virginia, seconded by several delegates and carried, the members of the House arose and applauded the President's remarks regarding Whitaker and Baxter.

Presentation of President-Elect John W. Cline and Vice President R. B. Robins

The speaker presented to the House the President-Elect, Dr. John W. Cline, and the Vice President, Dr. R. B. Robins.

Report of Board of Trustees

Dr. Louis H. Bauer, Chairman, presented the following report, which was referred to reference committees as follows:

To the Reference Committee on Reports of Board of Trustees and Secretary: Exemptions from Membership Dues; Twelve Point Program; Public Relations Department Expansion; Student American Medical Association; Appointment to Membership on Council on Scientific Assembly; Resolution on Absentee Ballot Adopted at Cleveland Session, and Treasurer's and Auditor's Report.

To the Reference Committee on Medical Education and Hospitals: Hospital Standardization and Aid to Medical Schools for Construction Only.

To the Reference Committee on Insurance and Medical Service: Inter-Association Committee on Health:

To the Members of the House of Delegates of the American Medical Association:

The following report of the Board of Trustees is respectfully submitted:

Financial Statement

The official reports of the Treasurer and of the Association's auditors are appended as a part of this report.

1950 was the first year in which members of the American Medical Association were called on to pay membership dues, and on Dec. 31, 1950 $2,655,785.00 in dues had been collected. An additional amount of $183,617.50 was collected between Dec. 31, 1950 and March 31, 1951.

Of the dues collected in 1950, $2,346,955.58 was allocated to the National Education Campaign. This, with the unexpended balance of $676,145.45 reserved at Dec. 31, 1949 and $70,284.50 of 1949 assessments paid in 1950 covered the cost of the Education Campaign. The campaign cost $3,093,385.53, which included $500,000.00 used for the establishment of the American Medical Education Foundation. The remainder of dues collected in the amount of $308,829.42 was transferred to ordinary income of the Association. This and other 1950 income are listed below:

Membership dues for 1950, less $2,346,955.58 allocated to National Education Campaign	$ 308,829.42
Fellowship dues	70,319.00
Income from Investments	169,520.81
Miscellaneous receipts and other income	40,312.10
	$ 588,981.33
Periodical subscriptions	2,315,212.39
Periodical advertising	2,599,306.74
	$5,503,500.46

Periodical publication costs and expenses were: Salaries and wages, $1,225,427.99; paper and ink, $674,848.83; illustrations, *$79,245.45; contract printing, $127,069.71; postage and cartage,* $193,102.11; editorial, excluding wages, $132,446.75; advertising sales and service, excluding wages, $95,946.92; circulation, excluding wages, $364,429.63; other costs including allocation of building and plant maintenance, depreciation, taxes and employee welfare, $282,301.47; *total,* $3,174,818.86.

The publication of the Eighteenth Edition of the American Medical Directory in 1950, covering a long compilation period, resulted in a loss of $43,161.86.

The Quarterly Cumulative Index Medicus was published at a *loss of $71,877.65 after provision for the fulfillment of* orders of unpublished volumes. Books, pamphlets and authors' reprints were sold at a loss of $57,104.59.

The net cost of conducting the Annual and Clinical Sessions was $72,214.47.

These items and the operation expense of Councils, Bureaus and related activities of the Association in the amount of $1,838,381.85, employees past service annuities and retirements $135,546.80, cash discounts $36,104.66, depreciation and taxes unallocated $32,160.65, legal and sundry $14,328.62, together aggregating $5,475,700.01, are a deduction from income. The net income in excess of expenses for the year 1950 is $27,800.45.

There was an increase in periodical publication advertising income in 1950 over 1949 of $167,469.11 and an increase in subscription income of $34,702.21.

Additions to investments for building improvements amounted to $52,061.98. There was also expended $59,545.67 for machinery, printing equipment, office furniture and laboratory equipment.

During the year the Association purchased common stocks for investment at a cost of $424,071.99. A modest increase in value is not reflected in the portfolio total, since cost prices are used as the basis for the evaluation of all securities in the annual statements. The Association owned securities on Dec. 31, 1950 valued at cost in the amount of $6,240,251.61. Of this amount $1,490,103.13 is held in the American Medical Research Fund and $500,000.00 in the recently established Fund of the American Medical Education Foundation. The remainder of $4,250,148.48 represents investments of the

General Fund	$ 700,148.48
Depreciation Reserve Fund	1,375,000.00
Association Reserve Fund	350,000.00
Retirement Reserve Fund	675,000.00
Building Reserve Fund	450,000.00
Equipment Modernization Reserve Fund	700,000.00

Exemptions from Membership Dues

The Board of Trustees has established the following exemptions from the payment of American Medical Association membership dues:

(1) Members who have retired from the practice of medicine, provided they are also excused from the payment of dues, in full or in part, by their component societies and constituent associations. (This will necessitate an amendment to the By-Laws, Chapter II, Section 3, and has been brought to the attention of the Committee on Constitution and By-Laws.)

(2) Members over 70 years of age, regardless of whether or not they are in practice and regardless of local dues exemption.

(3) Members for whom the payment of dues constitutes a financial hardship and who are also excused from the payment, in full or in part, of component and constituent society dues for the same reason. In each case, notification of exemption for financial hardship should be made to the American Medical Association by the secretary of the county and state medical society.

(4) Interns and residents not more than five years after graduation from medical school, except that time spent in military service may be excluded in calculating the five year limit.

(5) Members who enter military service prior to July 1 of any year are exempted from one half of the year's dues and subsequently during service from full dues.

Hospital Standardization

In its report to the House of Delegates at the Cleveland Session the Board of Trustees stated that a joint committee of the American Medical Association, the American College of Surgeons, the American College of Physicians and the American Hospital Association had been appointed, after numerous conferences of representatives of the four organizations, to draft a basic plan for a cooperative program in the field of hospital standardization. This group, which is now called the Joint Commission on Accreditation of Hospitals, has prepared the following *report, which is referred to the House of Delegates with the* approval of the Board of Trustees:

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

The American College of Surgeons for more than twenty-five years has administered a successful hospital standardization or accreditation program, developing standards, inspecting hospitals and approving those hospitals which met minimum standards. Because of the expanding scope and requirements of this program during the intervening years, its financing has become more and more demanding.

In the fall of 1950 the American College of Surgeons invited representatives of the American College of Physicians, American Hospital Association and American Medical Association to meet with representatives of the American College of Surgeons to discuss the establishment of a joint hospital accreditation program. *After frequent meetings over a period of six months, the* details of a plan for such a joint program were adopted unanimously by this conference committee. Representatives of each of the four organizations were designated as a subcommittee of four to prepare this statement for publication. There follows an outline on the basic pattern of the proposal for a joint hospital accreditation program as worked out by the large committee and recommended to the four organizations.

The proposal provides for the establishment of a Joint Commission on Accreditation of Hospitals. Members of the Commission will be constituent organizations, each of which will be represented by appointees of its choice. Basically the Commission will be composed of three representatives of the American College of Physicians; three representatives of the American College of Surgeons; six representatives of the American Hospital Association, and six representatives of the American Medical Association.

The exact composition of the Commission, however, will depend on the acceptance of an invitation to participate to be extended to the Canadian Medical Association. Since both Colleges and the American Hospital Association number Canadian members in their organization, it was the consensus of the conferees on the interim committee that Canadian interests in these fields would be represented by their parent organizations, but that the medical profession in Canada as a whole might desire representation similar to that proposed for the American Medical Association. If the invitation to participate is accepted by the Canadian Medical Association, *the apportionment of commissioners among* the constituent organizations will be adjusted to provide such representation.

The Joint Commission on Accreditation of Hospitals will formulate standards, determine the type and scope of inspections, allocate hospitals for inspection to the several participating organizations, maintain records and award all certificates of accreditation. It will be the sole and final authority on these matters. The Commission will employ a small staff to be directed by a physician, preferably one experienced in hospital administration.

Except in unusual or controversial cases, the staff of the Commission will make no inspections. Inspections will ordinarily be made by the field staffs of constituent organizations and may be combined with other inspections made by these organizations for other purposes, such as approval for intern and resident training.

All inspections for the purposes of hospital accreditation under this program will be made and reported in a uniform manner to be determined by the Commission, and such reports of inspection will be evaluated by the staff of the Commission and acted on by the Commission itself. There will be no interference with other types of inspections made by the constituent organizations.

The budget of the Commission will be met by the constituent organizations in the same proportion as their representation on the Commission. The initial annual budget has been estimated at approximately $70,000. Additional expenses will be borne by the constituent organizations for financing field staff work and other activities incidental to the maintenance of necessary inspection records required for the conduct of special approval programs conducted by constituent organizations.

The Regents of the American College of Physicians and the American College of Surgeons have approved the proposal for the establishment and financing of the Joint Commission on Accreditation of Hospitals. Similar consideration of the proposal will be given by the American Hospital Association at its annual meeting in September 1951.

Inter-Association Committee on Health

The Inter-Association Committee on Health, consisting of representatives of the American Dental Association, the American Hospital Association, the American Medical Association, the American Nurses' Association, the American Public Health Association and the American Public Welfare Association, has approved three statements which are herewith submitted to the House of Delegates for its consideration:

STATEMENT ON MATERNAL AND CHILD HEALTH

The coming of a baby, its nurturing and protection during the early formative years, is the center of any program of health and medical care. From this natural, normal functioning of the body and the mind stems the prevention of disease and the treatment of disease among people of all ages.

In the past few years of public debate about health and medical care programs, in which many groups have presented their opinions, a number of points of agreement about the care of mothers and children have come to light. Among them are the following:

I. Every mother and child should have equal opportunity for the best care known to medical and related sciences for the promotion of health, the prevention of disease and the treatment of disease.

II. Modern diagnostic and treatment facilities should be available to every physician who cares for mothers and children.

III. Many communities, because of geographic location or low income, do not have adequate facilities for the care of mothers and children or for the continuing education of doctors and other professional workers. It will be necessary to create an awareness of this need for adequate facilities and competent professional workers among the people in local communities and states. From this awareness will spring a desire among citizens and professional workers alike to weave a regional network of services and facilities through which adequate maternal and child care can be provided. Within this regional organization, specialized skills can then be brought to the local community as needed; resources for diagnosis, treatment and education of patients can be organized within the communities, or patients may be sent to regional centers for these specified skills. This regional organization would require the integration of local community hospitals, clinics, health centers and laboratories, with regional university hospitals, clinics and teaching centers. All of the professional skills of the region—of physicians, dentists, nutritionists, nurses, technicians, health officers, educators, etc.—would be mobilized for the care of the mothers and children who live there. To make this plan operate, an efficient system of transportation is highly essential.

IV. Every effort should be put forth to acquaint parents in these communities and states with the facilities which now exist, so that they may secure as many of these services as possible for themselves.

V. Federal grants-in-aid should be distributed according to the needs of the state, keeping in mind that the states with lower average incomes have higher ratios of children to adults and require larger proportional grants. When federal grants are used for health services for mothers and children in a state, the citizens and professional groups, through local, regional and state planning councils, should have studied the need and worked out a long range "blueprint" for meeting it. The extent to which such a long range "blueprint" can be put into practice at the outset will depend on the availability of professional workers with experience and competence and on the money available at the time. These factors should provide the basis in any state or community for determining what care shall be provided and for whom. These factors should also provide the basis for estimates by each state and community as to the extent of need for increased funds and additional trained personnel to carry into practice the successive steps of the long range "blueprint." The long range aim of every local, regional or state plan should be to assure that eventually the full scope of health and medical care will be available to all mothers and children, starting with the improvement of existing facilities, adding services step by step within a code of basic standards to be agreed on by experts representing all branches of health and medical care.

VI. Health services for mothers and children provided under public auspices should be centered in one health agency. Good care can result only from a continuity of service in health and disease, in home, in school, in health center, in hospital.

VII. There is need for well-supported and continuing activity in the federal government of a multifunctional agency drawing from the fields of health, education, labor and public welfare for the purpose of investigating and reporting on all matters relating to children and child life. It should cooperate with public and private health and welfare agencies in promoting the well being of the nation's children.

First Steps for Action

Proposed legislation before Congress is to be considered in the light of these points of agreement, plus whatever points might be added from time to time. If proposed legislation is introduced piecemeal, each bill is to be considered as part of a pattern and should fit into other legislation without need for major revision later.

In the present state of agreement, the following first steps are ready for support and action:

1. To establish in every full-time local health unit an organized program of maternal and child health staffed by competent professional workers.
2. To increase governmental appropriations where necessary for existing types of maternal, child health and crippled children services in the states. The purpose of these appropriations should be to upgrade existing maternal and child health and crippled children services with emphasis on encouraging various types of research and demonstration for bringing the best care to an increasing number of mothers and children.
3. To extend research in child life by making available adequate funds to the Children's Bureau to strengthen and broaden its work as a center of information related to child life, and to assist in financing specific study in the field by universities, schools, child research centers, agencies and individuals.

Out of the $625,000,000 spent for research by the federal government in 1947, probably less than $1,000,000 was spent for research in child life. There is great need for more knowledge about how normal children grow and develop in body and mind and the relation of the emotions to this process. The impact of conditions in the family, such as relations between parents and children; of attitudes of the physician and nurse as they provide medical and health care toward their child patients; the effect of customs and attitudes on the mind and health of the child as he grows—these and many other factors of similar nature are not fully understood and their relation to health is unmeasured. The causes and care of a number of diseases of children are still in need of much research in which the combined efforts of voluntary agencies, universities, other research centers and the local, state and federal governments are urgently needed to bring about a speedy solution.

Research is also needed in the various forms of organization for providing health and medical care in communities, states and the nation. The effectiveness of health education on the health habits of mothers and children is still largely untested.

4. To make possible the continued education of private practicing physicians, public health workers, nurses, dentists and other professional workers.

Mothers and children can receive adequate health and medical care only as more competent and experienced professional workers are available in private practice, in hospitals and clinics, schools and laboratories and in the various government services. Additional governmental and other financial support is needed for: fellowships and scholarships granted to professional workers; development of training courses and institutes for the continuous education of professional workers on the job using regional specialists wherever possible.

STATEMENT OF PRINCIPLES FOR THE IMPROVEMENT AND BETTER DISTRIBUTION OF NURSING SERVICES

The achievement of the following objectives is essential for the improvement in quantity, quality and distribution of nursing personnel in this country.

I. Expansion, improvement and financial support of nursing education in order (a) to attract greater numbers of qualified candidates, and (b) to prepare those nurses presently practicing as well as student nurses to meet rapidly changing medical and social demands.

II. Licensure of all who practice as graduate, trained, registered, practical or "licensed practical nurses" in order that safe nursing care will be assured to the public. (No attempt will be made to require licensure of various auxiliary workers, such as nursing aides.)

III. Promotion of such economic and other conditions of employment as will attract and retain an adequate number of competent nursing personnel.

IV. Research in nursing service practice is fundamental in determining the functions of various categories of nurses so that nursing resources can be utilized more effectively.

V. Intensive recruitment both national and local of students for schools of nursing.

VI. Development of sound training programs for auxiliary personnel.

STATEMENT ON LOCAL HEALTH UNITS FOR THE NATION

The principle of national health protection through tax-supported public health services within the jurisdiction of units of local civil government is approved.

The basic functions of such units or combination thereof, are *at least* the following six: Vital Statistics; Communicable Disease Control; Environmental Sanitation; Public Health Laboratory Service; Maternity, Infant and Child Hygiene, including children of school age; Public Health Education.

Additional functions are now included in some communities and a well rounded program will add still others. Among these are the prevention of chronic disease, dental health, mental health, occupational health, accident prevention, provision of hospital and medical care for selected groups for which there is acknowledged community responsibility.

Action Steps

I. Each professional organization interested in the field of health can with advantage concentrate its first efforts towards the formulation within each state of a well considered overall plan for the location, organization, staffing and tax support of local health units. It is estimated that 1,200 units will be sufficient for the nation.

II. The second and quite as pressing obligation is to promote public understanding of the best methods for improving the health of the people to the end that popular support of such achievement will become effective through the voluntary organizations, the members of the health profession and the officers and personnel of local government.

III. A third opportunity is the setting of high merit standards for public servants from among the professions and technologies involved with a view to encouraging the recruitment of competent personnel and the payment of salaries that will attract men and women of high quality.

IV. It is important for the success of many efforts toward the improvement of public health that the weight of all interested organizations be placed behind the movement to secure complete coverage of the nation with modern public health service.

Twelve Point Program

The special committee of the Board of Trustees to study the Twelve Point Program, which was appointed in compliance with a recommendation of the Reference Committee on Legislation and Public Relations at the San Francisco Session in 1950, has had several meetings and has given the program a great deal of serious consideration. A report is being prepared for submission to the House of Delegates.

Public Relations Department Expansion

As was reported to the House of Delegates at the Cleveland Session in December 1950, a committee consisting of Dr. Gunnar Gundersen, Chairman, Dr. Edwin S. Hamilton and Dr. B. R. Kirklin has been studying the public relations facilities and program of the Association. The committee has made recommendations to the Board of Trustees, which have been carried out, so far, as follows:

Mr. Lawrence Rember, heretofore Director of the Department, is now Field Director and spends a great deal of his time on the road bringing the Association's message to the "grass roots" in all parts of the country, advising local and state medical societies as to ways and means for expanding and improving their activities in public relations and gaining information of value to the headquarters offices.

Mr. Leo Brown, who came to the American Medical Association in December 1950 from his position as Public Relations Director for the Medical Society of the State of Pennsylvania to serve as Executive Secretary of the Student American Medical Association, has been placed in charge of the Public Relations Department as Director.

A forward step in the over-all set-up is the appointment about a month ago of an Advisory Committee to the Director of the Public Relations Department, composed of executive secretaries or public relations directors of constituent state medical associations. The members of this advisory committee are:

Mr. Charles S. Nelson, Executive Secretary, Ohio State Medical Association.

Mr. Ray E. Smith, Executive Secretary, Indiana State Medical Association.

Mr. Hugh W. Brenneman, Public Relations Counsel, Michigan State Medical Society.

Mr. Harvey T. Sethman, Executive Secretary, Colorado State Medical Society.

Mr. John Hunton, Executive Secretary, California Medical Association.

Mr. Richard H. Graham, Executive Secretary, Oklahoma State Medical Association.

Mr. Charles H. Crownhart, Secretary, State Medical Society of Wisconsin.

Mr. Frederick W. Miebach, Director, Public Relations Bureau, Medical Society of the State of New York.

The Advisory Committee will hold its first meeting *during* the Annual Session in Atlantic City.

Another forward step looking to a more efficient and comprehensive department is the appointment of an *Intradepartmental* Public Relations Committee for the purpose of *coordinating* all public relations activities of the headquarters staff.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. E. V. Allen, Chairman, presented the following report, which was adopted section by section and as a whole:

Your committee has reviewed those portions of the Report of the Board of Trustees referred to it, and has taken the following action:

1. Exemption From Membership Dues: Your committee approves the action of the Board of Trustees in regard to this matter.

2. Public Relations Department Expansion: Your committee approves the action of the Board of Trustees in regard to this matter.

3. Student American Medical Association: Your committee approves the acceptance of this portion of the report. Your committee notes with approval the attendance in this House of Delegates of Mr. Warren Mullen of the University of Michigan and Mr. Harry Sandberg of the University of Illinois. Your committee also commends the activities of the Student American Medical Association, and expresses the hope that it will continue to grow in scope of activity and in number of participants.

4. Appointment to Membership on Council on Scientific Assembly: Your committee approves the action of the Board of Trustees in regard to this matter.

5. Resolution on Absentee Ballot Adopted at Cleveland Session: Your committee approves acceptance of this portion of the report.

6. Treasurer's Report and Auditor's Report: Your committee approves the acceptance of this portion of the report.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. William Bates, Chairman, presented the following report, which was duly adopted after discussion and as amended by the following statement of Dr. E. Vincent Askey, California, concerning the portion on Hospital Standardization:

At all times the Board of Trustees or the representatives of the American Medical Association be instructed, in any agreement they make to be bound and to follow the principles as elucidated by this House of Delegates.

Aid to Medical Schools for Construction Only: Your Reference Committee on Medical Education and Hospitals wishes to report on that portion of the Report of the Board of Trustees referring to "Aid to Medical Schools for Construction Only."

The committee took the liberty of rephrasing this statement of policy for the sake of clarity and suggests the following statement:

The policy of the American Medical Association shall be the endorsement of the principle of a one-time federal grant-in-aid on a matching basis, based on the Hill-Burton Act formula and administrative machinery, for construction, equipment and renovation of the physical plants of medical schools. No part of the funds shall be used in any manner for operational expenses or salaries.

Hospital Standardization: Your Reference Committee on Medical Education and Hospitals wishes to report on that portion of the Report of the Board of Trustees referring to Hospital Standardization; the resolution presented by Dr. C. A. Nafe for the Indiana delegates, entitled "Appointments to the Commission on Accreditation of Hospitals"; the resolution from the Nebraska State Medical Association recommending that "Control of Professional Standards in Hospitals be Vested in the American Medical Association"; the resolution presented by Dr. George Earl for the Minnesota delegates on "Hospital Standardization Program" recommending that the American Medical Association singly or in combination with the American College of Surgeons continue to maintain the Hospital Standardization program in its traditional form, and the resolution presented by Dr. Ralph A. Johnson for the Michigan delegation, entitled "Hospital Standardization" recommending that the American Medical Association extend inspection service to include the inspection of all portions of hospital care and looking to the standardization of hospitals inviting the cooperation of any other national organizations which have an interest in this problem. In addition, your committee had the Supplementary Report of the Board of Trustees signifying that that body has received an invitation from the American Hospital Association for a conference between officials of that Association with the Board of Trustees of the American Medical Association for a preliminary discussion of hospital-physician relationships. They have voted that arrangements be made to hold this meeting in the near future.

During an extended hearing, your committee listened to many views ranging from support of the Board of Trustees report, to limiting the organizations on the accrediting body to 3, 2 and even one; suggestions that the accrediting agency represent any one medical organization just as long as two or more general practitioners were included in its personnel; or that the one organization be the American Medical Association, and that only professional medical organizations be represented on the Commission.

It was a difficult problem and your committee thinks everyone is cognizant of the work of and are grateful to our Board of Trustees for the emergency handling of a delicate problem in an efficient manner.

In spite of the various views expressed, many showing fear or suspicion of one or another group, both within and without the profession, and after listening to the details of background and methods of arriving at the Board's present report, your committee sympathizes with those groups who would like to bring this problem more nearly or even completely under control of our own organization.

Your committee wishes to make it clear that it has learned that the other proposed cooperating organizations each will contribute a proportionate financial support, in spite of the willingness of our Board to assume the whole financial burden. Therefore, we realize that financial aspects cannot accomplish a complete solution.

It appears to us that failure on our part to share in some proportion the over-all great responsibility of the proposed agency at this time may bring discredit, possible suspicion and perhaps other complicating difficulties to our organization.

Your committee believes that the negotiating committee of the Board of Trustees has performed a splendid service in gaining an increase in voting power for Doctors of Medicine on the Commission gradually from the original ratio of three out of twenty-four, to twelve of eighteen, and for the American Medical Association to six of eighteen. A large number of members in their discussion before your reference committee expressed a desire for an even greater proportion in the voting power of the American Medical Association on the Commission. Your committee has learned nothing that either the negotiating committee or the Board of Trustees themselves did not wish the same. Indeed, we believe there is a possibility that they did desire it, as shown by the increasing augmentation in this respect from the original proposal to the present one. Therefore, we believe that this House of Delegates should further support the Board of Trustees by recommending that they rearrange slightly the voting power in the Commission to: Three representatives of the American College of Surgeons; three representatives of the American College of Physicians; four representatives of the American Hospital Association, and eight representatives of the American Medical Association.

By such an arrangement, an evolutionary process, together with our belief in the astuteness and continued diligence of the Board of Trustees, your committee believes we can assure those with opposing resolutions and testimony that the best interests of all divisions of the medical profession will be amply protected.

Your committee wishes to call to the attention of the Board of Trustees the desirability of expressions repeatedly made in discussions before them, that general practitioners be represented on the voting body for the American Medical Association and that an advisory committee be formed consisting of representatives from all scientific sections of the American Medical Association. To implement these, your committee recommends that the House of Delegates request that the Board of Trustees should institute these suggestions, and that they make it permissible for members of the advisory committee to observe the deliberations of the Accreditation Commission, a provision which would allow present consultants from all medical fields when problems concerning them arise.

This committee wishes to call to the attention of the Board of Trustees the desirability of statements which were also so frequently expressed, that inspections, discussions and accreditation of hospitals by the Commission from the point of view of the medical professional aspects of hospital care be carried out only by the medical representatives on the Commission, and that they convey this philosophy to those representatives after the Commission has been formed to be implemented when and as soon as it could be possible to do so.

It is anticipated that the Board of Trustees and later, the American Medical Association representatives on the Commission, will inform the House of Delegates, through the report of the Board of Trustees during meetings of the House of Delegates, of the progress toward implementation of these evolutionary recommendations.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. William R. Brooksher, Chairman, presented the following report which was adopted:

That portion of the report of the Board of Trustees entitled "Inter-Association Committee on Health" was considered by your committee. Your committee does not now recommend adoption of the statements but does recommend a continuation of the activities of this committee in cooperation with the other organizations comprising the Inter-Association Committee on Health.

SUPPLEMENTARY REPORT OF BOARD OF TRUSTEES

Dr. Louis H. Bauer, Chairman, presented the following supplementary report of the Board of Trustees:

1. Contributions to Medical Schools: The Board of Trustees wishes to reiterate that any physician who desires to earmark his contribution to the American Medical Education Foundation for a specific medical school may do so and that the medical school will be so informed when the funds are turned over to it.

2. Meeting with American Hospital Association: An invitation has been received from the American Hospital Association for a conference between the officials of that Association with the Board of Trustees of the American Medical Association for a preliminary discussion of hospital-physician relationships. The Board of Trustees voted that arrangements be made to hold this meeting in the near future.

3. Committee on Nervous and Mental Diseases: Cognizance was taken of the fact that the American Medical Association has no committee on mental health. The Board of Trustees, therefore, authorized the appointment of a Committee on Nervous and Mental Diseases.

4. Advisory Committee on Internships: The Board of Trustees, believing that it should undertake at this time an intensive study of the problem of the discrepancy between the number of internships offered and the number or available candidates and the question of the possible alteration or abolishment of the internship, approved the appointment of an advisory committee to the Council on Medical Education and Hospitals, to be composed of leaders in the field of education, practice and hospital administration, and has appropriated sufficient funds to permit the committee to function.

5. Resolutions on National Broadcasting Company:

WHEREAS, The National Broadcasting Company is celebrating in 1951 the twenty-fifth anniversary of its service to the American people; and

WHEREAS, The National Broadcasting Company has rendered outstanding educational services to the American people through its broadcasting of public events, music, literature, forums and other educational features; and

WHEREAS, Health education has been among the principal interests of the National Broadcasting Company manifested through its cooperation with the American Medical Association from 1933 until the current year 1951 through seventeen annual series of pioneer broadcasts demonstrating the application of the dramatic technique by radio to the advancement of health education and by other broadcasts; and

WHEREAS, These broadcasts have constituted an outstanding service to the American people and have represented a high degree of cooperation with the medical profession in the pursuit of common objectives; therefore be it

Resolved, That the American Medical Association, by action of its House of Delegates assembled at Atlantic City, June 11, 1951, does hereby offer to the National Broadcasting Company its congratulations on the completion of a quarter century of outstanding public service; and be it further

Resolved, That the American Medical Association extends to the National Broadcasting Company its sincere expression of appreciation for cordial cooperation and effective teamwork in health education by radio.

6. Resolution on Income Tax Exemption: This resolution, introduced by Dr. J. Wallace Hurff of New Jersey, amended by the Reference Committee on Legislation and Public Relations and adopted by the House of Delegates in June 1950, was referred to the Committee on Legislation.

The Committee gave consideration to it and reported that the present holding with respect to the deductibility of the expenses under consideration is based on a ruling of the Office of the Commissioner of Internal Revenue, which is as follows: "Expenses incurred by doctors in taking postgraduate courses are deemed to be in the nature of personal expenses and not deductible."

Efforts have been made since 1925 to have this ruling reversed but have not been successful. The Committee on Legislation recommended that if and when it is considered timely and desirable to prosecute this matter further there are available at least three methods of approach. First, an effort could be renewed to induce the Office of the Commissioner of Internal Revenue to reverse the 1921 ruling. Secondly, further efforts could be made to bring the issue before the United States Tax Court, with the assumption by the Association of all expenses incident to the appeal, and finally, if the two approaches suggested are without results, an attempt could be made to induce the Congress to amend the Internal Revenue Code specifically to authorize the deductibility of expenses incurred in pursuing postgraduate study.

The Board of Trustees approved the report of the Committee on Legislation and directed that another effort be made to induce the Office of the Commissioner of Internal Revenue to reverse the 1921 ruling and, if that fails, to endeavor to bring the issue before the United States Tax Court.

7. Report of Committee on the Twelve Point Program: On June 28, 1950, in San Francisco, the Reference Committee on Legislation and Public Relations of the House of Delegates in its report expressed the opinion that the Twelve Point Program should be augmented and clarified. The Committee recommended that "The House of Delegates request the Board of Trustees to appoint a committee to study carefully the Twelve Point Program, with the idea of making changes which may be indicated." The Committee further recommended that "this be a continuing committee which will advise the Association from time to time concerning appropriate changes in policy which may be deemed advisable, by changing circumstances." This report was adopted by the House of Delegates. In accordance with this directive, this Committee was appointed by the Board of Trustees and has been engaged in a diligent study of the Twelve Point Program and related questions of policy. Advice has been sought and received from many individuals and groups, including a number of departmental heads of the American Medical Association headquarters. Reports have been rendered the Board at its quarterly meetings in December, February and April. Full agreement has not been reached by the Board in reference to a number of questions of policy recommended in these reports and it is felt that such debatable matters should have further consideration before a final report is rendered to the House of Delegates by the Board of Trustees.

It is further felt that the purposes of the committee should be further defined. The implications of the directive from the House of Delegates are that the Committee should not only augment and clarify the Twelve Point Program but should recommend policies or changes in policies as would serve to carry out the purposes expressed therein. We believe that this intent should be clearly affirmed or denied by the House of Delegates.

We are satisfied that the Twelve Point Program, as originally formulated and as further elucidated, constituted a satisfactory statement of our objectives. Certain of these objectives have been accomplished in whole or in part. Others are now in controversy. Our fundamental policy is expressed in our Constitution and our Principles of Medical Ethics. Article 2 of our Constitution states that "the objects of our Association are to promote the science and art of medicine and the betterment of public health." Any elaboration of this simple and comprehensive statement would seem useless.

There are, however, certain practical questions requiring action. Numerous bills are introduced into each session of the Congress, affecting medicine in its several branches and the medical welfare of the public at large. In testifying before the Committees of the Congress, it is not sufficient to quote our Twelve Point Program or Article 2 of our Constitution.

It seems necessary, therefore, to formulate certain practical policies that will guide us in striving to accomplish our own objectives as expressed in our Twelve Point Program, and in supporting or opposing proposed legislation bearing on medicine.

We feel that such a statement should define the components of good medicine and enumerate the safeguards and restrictions that should be included in any bill before the Congress that may affect the medical welfare of the American people. We therefore recommend to the Board of Trustees that it request the House of Delegates to define the purposes of this committee, and that this committee or its successor be authorized to formulate such a statement of policy to be presented to the Board of Trustees for its consideration and recommendation to the House of Delegates.

8. Proposed Amendment to By-Laws: The Board of Trustees recommends the following amendment to Chapter X, Section 4, fourth paragraph under "(B) Membership" to read:

"The Council on Medical Service shall include nine Member or Service Fellows, each of whom shall serve for a term of three years so arranged that at each annual session the terms of three members expire. In addition, the immediate Past President of the Association shall serve as a member of the Council. At each annual session the Board of Trustees shall present to the House of Delegates three nominations for each vacancy in the Council, and the House of Delegates shall elect from such list. In 1951 three members shall be elected for three years, one for two years and one for one year. The chairman shall be selected by the Council from its elected members."

9. Informative Report on Advisory Committee of Outstanding Laymen: The Board of Trustees is very anxious to see the Association improve its relations with the general public. We feel that perhaps we do not come quite close enough to the general public and we also feel that the Association, we as a profession, should anticipate the needs of the public. Therefore, the Board voted this morning that it would appoint an advisory committee of outstanding laymen who will meet with the Board from time to time and give it advice on the reaction of the public to various propositions, and perhaps bring matters to our attention which we otherwise might not hear about soon enough.

May I say that, in making up this committee, we have not settled on any definite number. There will be no politicians on the committee, but those who are selected will be men of such outstanding prominence that their very names will inspire public respect. We feel this in itself is going to help improve the public relations of the Association. We have in mind picking people from industry, both large and small, from the bar, from education and from the clergy, and possibly others. We have not yet determined the details of it but we feel it is a very forward step in improving the relationship between the American Medical Association and the general public.

RETIREMENT OF HATTIE A. NIEHOFF

Before I sit down, I would like to say just one word which is not part of my official report. We have here on the platform this morning an individual who has served the American Medical Association for thirty-seven years and she has been the chief clerk of this House of Delegates for I don't know how many of those thirty-seven years, certainly long before I became officially connected with the American Medical Association. She is retiring in September so this is the last function at which you will see her officially, but I hope she will return unofficially and watch us trying to struggle along without her.

I think that the House should give a standing testimonial to Miss Hattie Niehoff for thirty-seven years of faithful, devoted, loyal service.

May I say, in closing, that I wish every member of the American Medical Association was as inspired with loyalty to our Association as she has been.

The Speaker referred to the Reference Committee on Reports of Board of Trustees and Secretary the supplementary reports of the Board of Trustees on Contributions to Medical Schools, Resolutions on National Broadcasting Company and report of Committee on Twelve Point Program; to the Reference Committee on Medical Education and Hospitals the reports on meeting with American Hospital Association and Advisory Committee on Internships; to the Reference Committee on Miscellaneous Business the report on Committee on Nervous and Mental Diseases; to the Reference Committee on Legislation and Public Relations the Resolution on Income Tax Exemption; to the Reference Committee on Amendments to the Constitution and By-Laws the Proposed Amendment to Chapter X, Section 4 "(B) Membership."

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Edgar V. Allen, Chairman, presented the following report, which was duly adopted section by section and as a whole:

1. Contributions to Medical Schools: Your committee agrees with the Board of Trustees that emphasis should be placed on the fact that physicians who desire to earmark their contribution to the American Medical Education Foundation for a special medical school may do so, and that the medical school should be so informed when the funds are allocated to it, and recommends that this privilege be publicized in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and brought to the attention of the constituent state medical associations. Your committee notes with approval that the American Medical Association, through its Board of Trustees, absorbs the cost of allocation of such funds.

2. Resolutions on National Broadcasting Company: Your committee concurs with the Board of Trustees that a congratulatory resolution be sent to the National Broadcasting Company in commemoration of its 25th anniversary.

3. Report of Committee on Twelve Point Program: Your committee has reviewed the report of the Board of Trustees on the Twelve Point Program as well as the supplementary report of the Board of Trustees on this same subject. It is the recommendation of your committee that the special committee which was constituted by the Board of Trustees to review and augment the Twelve Point Program as authorized by the House of Delegates at the 1950 Session in San Francisco be empowered to formulate a statement of policy that will guide the Association and its constituent societies in implementing the Twelve Point Program and in dealing with legislative proposals affecting the medical welfare of the American people.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. William Bates, Chairman, presented the following report which was duly adopted section by section and as a whole:

1. Meeting with American Hospital Association (See report under action on Report of Board of Trustees).

2. Advisory Committee on Internships: Your Reference Committee on Medical Education and Hospitals wishes to report on that portion of the Supplementary Report of the Board of Trustees, referring to an Advisory Committee on Internships.

Your committee commends this action of the Board of Trustees and appreciates its implementing appropriation for this much needed evaluation of a multi-faceted and important phase of medical education.

Your committee further recommends all possible speed compatible with ability to reach sound conclusions and make definite recommendations. A report of the status of this investigation should be made to the next session of this House of Delegates in Los Angeles in December, 1951.

As any constructive answers to the Illinois State Medical Society's Resolution on the More Equitable Distribution of Interns to Small Non-Teaching Hospitals, and the resolution from the Ohio State Medical Association concerning this same problem, are dependent on the investigation being instituted by the Board of Trustees, this committee commends those societies for their constructive thinking. It recommends serious consideration by the Advisory Committee of our recommendation for speed. The present cooperation between the Council on Medical Education and Hospitals and the official governing bodies of interns in the various states, as well as the present vicious financial bidding for intern services are dependent on an early solution by this new investigating committee.

Report of Reference Committee on Miscellaneous Business

Dr. Andrew A. Eggston, Chairman, presented the following report, which was duly adopted:

Supplementary Report of Board of Trustees on Committee on Nervous and Mental Diseases: Your reference committee approves of the action of the Board of Trustees in authorizing the appointment of a committee on nervous and mental diseases.

Report of Reference Committee on Legislation and Public Relations

Dr. L. G. Christian, Chairman, presented the following report, which was duly adopted:

Resolution on Income Tax Exemption: Your committee approves the report as written and suggests that effort be made to induce the Department of Internal Revenue to reverse the 1921 ruling, which is: "Expenses incurred by doctors in taking postgraduate courses are deemed to be in the nature of personal expenses and not deductible," and report to the House of Delegates at its interim meeting in Los Angeles in December, 1951.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. Robertson Ward, Chairman, presented the following report, which was duly adopted:

Amendment Proposed to Chapter X, Section 4(B) Membership: A supplementary report of the Board of Trustees, introduced by Dr. L. H. Bauer, concerning a change in the composition of the Council on Medical Service, was considered by your committee. After considerable discussion, in which the reasons for the suggested amendment were explained by the Board of Trustees, it is the recommendation of your committee that this resolution be not accepted, and that a substitute resolution be adopted. The substitution is as follows:

Resolved, That a special committee of the House of Delegates be appointed by the Speaker to review the organizational structure of the standing committees of the House of Delegates, especially in their relation to the Board of Trustees, and report to the House of Delegates at the next interim session in Los Angeles.

Report of Secretary

Dr. George F. Lull, Secretary, presented the following report which was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

To the Members of the House of Delegates:

According to the instructions of the House of Delegates, the Secretary renders an annual report but once a year, and that report is rendered at the midwinter session, the Clinical Session. I have no supplemental report to render. However, I have some remarks to make about the dues.

The dues are being paid in an extremely gratifying manner. We are going to have for the year 1950 well over 90% of the dues-paying members of the Association having paid their dues. We find, of course, that a great many people who have been carried as members are, in reality, not dues-paying members. Some of them are very old and are not engaged in the practice of medicine; others are interns and residents, honorary members in some places; and we have been unable to determine until the present, and it is not wholly determined at the present time, as to just who they are. We have carried them as members and when they did not pay the 1950 dues and we sent a letter, we received a reply saying, "I am 87 years of age and I do not practice."

We have some members who say they never were members of the Medical Association and they have not understood for years that they have belonged to the American Medical Association because they have never had to pay any dues. They say they never joined. We are trying to make that clear to them.

This is a slow process, this change-over in the collection of dues, and it will take a period of several years before we get it on any kind of even keel. The fact that we cannot send out Fellowship bills until membership dues are paid makes it complicated for some who are concerned about getting Fellowship cards. However, I want to report to the House that it is very gratifying the way the membership dues are coming in.

Report of Coordinating Committee

Dr. Elmer L. Henderson, Chairman, presented the following report, which was referred to the Reference Committee on Miscellaneous Business:

Mr. Speaker, Members of the House of Delegates:

Earlier today, during the President's address, you heard the announcement of the Coordinating Committee and the Board of Trustees, that the National Education Campaign will be terminated at the end of 1951, on the recommendation of Whitaker and Baxter, the campaign managers. The remainder of this year will be a transition period during which the Public Relations Department of the American Medical Association should position itself to maintain the great gains made in public support during the campaign. Your Coordinating Committee, which has been charged with the general supervision of the National Education Campaign since its inception, feels therefore that this is an appropriate time to review briefly the progress of our work.

As we taper off our campaign activities in this period of comparative calm, the medical profession can look back with pride on its achievements during the past two and one-half years of fire and fury. We have come a long way in our battle against socialized medicine. We have struck some strong, positive blows in behalf of American freedom and voluntary methods, and perhaps we have made a little history in the process.

When we began our campaign in January, 1949, we stood with our backs to the legislative wall, and we stood there alone. But we had a strong case to present and a story to tell that was of imperative importance to the health and welfare of the nation. We presented our case and told our story, not in the political back rooms and horse-trading centers of Washington, but immediately and directly to the American people. The response of the people has shown that organized medicine never has made a wiser decision in the realm of public policy, than to take its case to the people. By the time of our annual session here in Atlantic City two years ago, more than 800 national, state and local organizations had risen up in official protest against compulsory health insurance, and the dismayed advocates of socialized medicine already were beginning to falter. We could scarcely believe that such broad support could be mobilized so quickly.

But that was only the beginning. Since then, with medicine's campaign reaching out to all the nation on a nonpartisan, grass roots basis, the socializers have continued to retreat, and the medical profession has won ever-growing public support. As of now, nearly 11,000 national, state and local organizations, after studying the pros and cons of the issue, are on public record with resolutions against compulsory health insurance or any other form of socialized medicine. Representing many millions of members, and constituting the biggest nonpartisan cross section of opinion ever mobilized on a public issue of this kind, those 11,000 organizations include women, farmers, veterans, businessmen, workers, professional people, educators, clergymen, Democrats and Republicans, rich and poor. Out of their vigorous, public protest against socialized medicine, has come an ever-expanding public opposition to all forms of creeping socialism in this country, a growing realization that the forces of statism threaten not just doctors but all Americans.

Medicine's crusade for freedom and for high medical standards has served not only the medical profession, but the entire Nation. It has rekindled a faith in fundamental Americanism. It has bolstered the courage and spirit of other professions, of businesses and industries and of millions of individuals who would like to preserve the American way of life. Our campaign gave them a rallying point and a means of expression. Last October, for example, when we conducted our intensive, nationwide advertising program, we received outside support in such fabulous proportion that it wrote a new chapter in the field of advertising and public relations.

We ourselves, using newspapers, magazines and radio, spent around one million dollars to state American medicine's position on the basic issue of freedom versus compulsion, voluntary methods versus totalitarian methods. But at the same time more than 65,000 companies, groups and individuals outside of the medical profession spent over two million dollars for tie-in advertising space in which to voice their support of medicine's position. They spent that money, out of their own pockets and of their own free will, to express their confidence in our profession and to reaffirm their faith in the American way of doing things. The most heartening aspect of all was that the vast majority of those advertisers were small companies and individual merchants and businessmen located in the small towns of the nation. Their voice was not the voice of big business or big money. It was the voice of John Q. Public, the voice of Mr. and Mrs. Average American. The same voice was heard again last November in the polling places of the nation, after the votes were counted in the Congressional elections. And again the results reflected public confidence in medicine's campaign against state socialism. The people rejected nearly ninety per cent of the candidates who still were known to favor compulsory health insurance. They rejected a number of others who attempted to straddle or avoid the issue. In both the primary and general elections last year, the people also voiced a general protest against the extension of socialistic philosophies in this nation's government.

Meanwhile, in the positive phase of our National Education Campaign objectives, voluntary programs of all kinds have moved ahead with marked, accelerated progress in the fields of health insurance, medical care, medical education and related activities. Individual physicians and their medical societies in 48 states and over 2,000 counties are engaged in the most constructive, progressive and concentrated programs the nation ever has seen to solve the problems of medical care.

Our long-range campaign goal, you will remember, was not just to beat a bill in Congress, but rather to solve existing problems, meet the medical needs of the people and improve the public relations position of the American Medical Association and medicine generally. The major portion of the campaign funds have been spent for this constructive purpose.

The country's Voluntary Health Insurance Plans are continuing to gain public acceptance as the sensible, American way of taking the economic shock out of the cost of serious illness. At an extremely conservative estimate, at least 72 million Americans now have some form of coverage protecting them against hospital, surgical, or medical expenses. The voluntary plans are working toward an expected total enrolment of 90 million persons within the next two or three years. They not only are growing in size; they also are extending their benefits and improving and simplifying their methods of enrolment on a sound, actuarial basis.

We of the medical profession must continue to give maximum support to the further development of voluntary health insurance to the end that sound, low-cost, comprehensive protection will be available to every American, regardless of where he lives or works.

Progress, the voluntary way, has not been limited to the field of health insurance. The state and county medical societies, with the cooperation of medical schools, public officials and the people in their areas, are demonstrating the value and effectiveness of local effort and cooperation in the field of public welfare. They are making notable progress in establishing programs to provide night and day emergency medical service, to settle the grievances and complaints of patients, to locate doctors and medical facilities in communities which need them, to set up informational services and to improve physician-patient relationships.

In the course of our campaign—presenting the case against compulsory methods, aiding the progress of voluntary methods and telling medicine's story—we have distributed approximately 100 million pamphlets, and other millions of leaflets, stickers, basic speeches, radio scripts, reprints, study and discussion kits, posters, cartoons, articles and other special materials. There is no question that the majority of the people have heard medicine's case and have reacted to the facts. Included in that massive distribution have been almost 90,000 reproductions of the campaign theme piece, "The Doctor" picture, for display in physicians' waiting rooms, hospital lobbies and other appropriate places. More than half of the physicians of the Nation are displaying the picture in their offices, at their own request.

The team of active campaign workers distributing pamphlets, giving speeches, writing letters, talking to friends and fellow citizens and securing formal action from organized groups has been made up of about 250,000 physicians, dentists, druggists, insurance men, doctors' wives and other medical and nonmedical people who believe in our cause.

As a result of that nationwide effort, we have won unmistakable support from the majority of the people. They have expressed that support in many and varied ways, as individuals and as organized groups, through personal letters and official resolutions, by means of newspaper advertising and the ballot box, in public opinion surveys and in the rising enrolments of voluntary health insurance plans.

An especially significant campaign development in recent months, since you last heard a report from the Coordinating Committee, has been the increasing evidence of labor support for medicine's stand against compulsory health insurance. During the Cleveland Clinical Session last December, we heard the vigorous address of Mr. William L. Hutcheson, General President of the United Brotherhood of Carpenters and Joiners of America and Vice President of the American Federation of Labor, in which he reported his union's refusal to support the Truman Health Program, and in which he presented a blistering indictment of socialized medicine. This evening, here in Atlantic City, the House of Delegates will hear an address by another outstanding American labor leader, Mr. Dave Beck, Executive Vice President of the International Brotherhood of Teamsters. Mr. Beck will speak at the dinner meeting to be given by the Medical Society of New Jersey, and his address, like that of Mr. Hutcheson, will be broadcast nationwide. Your Coordinating Committee is confident that Mr. Beck's address will be of great interest, not only to the medical profession but also to the rank and file of American labor and to the general public. The Committee is in a position to predict that the coming months will bring still more concrete evidence of American labor's distaste for compulsory health insurance.

Another recent development, signifying medicine's increased influence in public affairs, and also demonstrating the need for our constant vigilance, was the successful outcome of our clash with Federal Security Administrator Oscar Ewing in the controversy involving the FSA pamphlet, "Common Human Needs." That pamphlet contained the statement: "Social security and public assistance programs are a basic essential for attainment of the socialized state envisaged in a democratic ideology, a way of life which so far has been realized only in slight measure." Our original protest against that statement, made on the President's Page of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, led to a heated exchange of telegrams with Mr. Ewing. In that exchange we refuted his counterprotests by showing that the pamphlet had been reprinted in 1949, some two years after Mr. Ewing became Federal Security Administrator, and that it still was being distributed up to the time of the controversy. As a result, rather than rewriting or eliminating the offensively un-American passage, Mr. Ewing stopped further publication of the pamphlet and ordered the destruction of all copies still on hand.

In the five months period since December, 52 general mailings have been made from Campaign headquarters to keep medicine's story before the general public, members of Congress, physicians, dentists and druggists, the press and special groups such as labor and women's organizations. The material sent out included the report on our advertising campaign, news releases, speeches by various doctors, study kits and specially prepared material for different types of women's organizations, the labor address by Mr. Hutcheson, speeches and articles on medicine's positive accomplishments and a variety of other items.

Your Coordinating Committee feels, in conclusion, that the National Education Campaign not only has built a nationwide bulwark of friends for the medical profession, but also has laid the groundwork for a continued strengthening of medicine's position in the months and years ahead.

Presentation of Plaque from National Editorial Association

Dr. Elmer L. Henderson, President, stated that it was now his pleasure to present to the American Medical Association a beautiful plaque carrying the commendation of the National Editorial Association, and asked the Speaker of the House to read the plaque, as follows:

The National Editorial Association, April 30, 1951

Elmer Henderson, M.D., President, American Medical Association and Chairman, National Education Campaign.

Dear Doctor:

The following action was taken by the National Editorial Association at the spring meeting in New York, April 19, 1951:

"WHEREAS, We believe that an outstanding contribution during the past year to the cause of individual freedom and the maintenance of our American way of life has been the nationwide campaign by the American medical profession in behalf of freedom for both physicians and the cause of political freedom; therefore, be it

Resolved, That we do publicly commend the doctors of our country for their enlightened contribution to the American way of life and do recognize this public service so ably performed by the American Medical Association, the officers, the Board of Trustees, the Campaign Committee and Clem Whitaker and Leone Baxter who directed the National Education Campaign of the American Medical Association."

Sincerely yours,
Don Eck
General Manager

To the office of George Lull, M.D., Secretary and General Manager, American Medical Association.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report, which was duly adopted:

Your reference committee has carefully reviewed the report of the Coordinating Committee and the Board of Trustees concerning the National Education Campaign so ably presented by Dr. Elmer Henderson.

The crusade of the National Education Campaign, so effectively organized and conducted in every detail, has not only served medicine but every phase of American life. A by-product of this Committee's work has been to rekindle hope not only for physicians but for other professions, business, labor, and millions of people who want to keep America the citadel of freedom on earth. Gratitude is indeed due to all those walks of human endeavor who rallied so gallantly to the clear, clarion call of an approaching catastrophe. The concerted effort of everybody proved that the medical profession has the know-how to deliver a powerful blow to any evil force that threatens to harm medical care of suffering individuals. The medical profession has always been and will continue to be a light and haven of refuge for the sick. The report of the Committee is a veritable roster, paragraph by paragraph, of accomplishment never before equalled in such a short time. All people should read the report and meditate on every recitation of the accomplishments. One is repaid by a feeling of courage not to weaken or lose faith when fighting for the right. In the report of the Council on Medical Service one reads, "What are we getting for our twenty-five dollars?" After a survey of the results, it can truly be said: First, there are as yet no balls and chains about the ankles of the American physician and he can still walk with pride and head unbowed; secondly, there are no handcuffs and he can still write prescriptions, even if sometimes unreadable, as freely as a bird can scratch for a worm, and thirdly, there is as yet no cerebral ankylosis or palsies, and he can still think freely, spiritually and scientifically, dictated to only by the milk of human kindness and consideration for the sick in mind and body.

All of these were on the very edge of the precipice of extermination on Jan. 1, 1949, when the Coordinating Committee began functioning. What has been wrought is nothing short of miraculous and for so small a pittance in money. Medical freedom could have been lost, yet so many physicians, even today, do not realize this nor are they grateful for their salvation. Miracles are frequently not immediately explained or appreciated. Nothing more can be said about results of the Coordinating Committee's efforts, and nothing more need be said. History, and other plaques such as presented by the National Editorial Association, will record the accomplishment for posterity.

In closing, your committee wishes to inject a note of warning about tapering off the education activities and vigilance lest we drift into a state of complacency. If this should happen we shall be like the fisherman who gives his line too much slack and loses the big fish which are temporarily on the hook.

Your reference committee approves the report of the Coordinating Committee.

Report of Judicial Council

Dr. Walter F. Donaldson, Acting Chairman, presented the following report, which was referred to the Reference Committee on Miscellaneous Business:

1. During the Clinical Session held at Cleveland, in December, 1950, a resolution was introduced suggesting amendments to the Principles of Medical Ethics, Section 6, Chapter I, which section at that time read as follows:

Sec. 6.—An ethical physician will not receive remuneration from patents on or the sale of surgical instruments, nor profit from a copyright on methods or procedures. The receipt of remuneration from patents or copyrights tempts the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients, the public or the medical profession. The acceptance of rebates on prescriptions or appliances, or of commissions from attendants who aid in the care of patients is unethical. An ethical physician does not engage in barter or trade in the appliances, devices or remedies prescribed for patients, but limits the sources of his professional income to professional services rendered the patient. He should receive his remuneration for professional services rendered only in the amount of his fee specifically announced to his patient at the time the service is rendered or in the form of a subsequent statement, and he should not accept additional compensation secretly or openly, directly or indirectly, from any other source.

The prescription or dispensing by a physician of secret medicine or other secret remedial agents, of which he does not know the composition, or the manufacture or promotion of their use is unethical.

The resolution referred to suggested that in the fourth sentence the words "for financial gain" be inserted after the words "for patients," and that the remainder of the paragraph be deleted. The reference committee recommended that the resolution, as presented, be not approved, but that the suggestions therein contained be referred to the Judicial Council for further study.

The Judicial Council has considered these suggestions, as well as suggestions with similar objectives received from other sources, and now recommends to the 1951 House of Delegates that Section 6, Chapter I, first paragraph, of the Principles of Medical Ethics be amended to read as follows:

An ethical physician will not receive profit from patents on, or from the sale of surgical instruments, appliances and medicines nor from a copyright on methods or procedures. The acceptance of profit from patents or copyrights tempts the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients, the public or the medical profession. The acceptance of rebates on prescriptions or appliances, or of commissions from attendants who aid in the care of patients is unethical. It is unethical for a physician to engage for financial gain in barter or trade in the appliances, devices or remedies prescribed for patients. The ethical physician limits the sources of his professional income to professional services rendered the patient. Fee splitting under any guise is unethical.

The Judicial Council has added to the suggestions of last year's reference committee only the last sentence, reading: "Fee splitting under any guise is unethical."

2. Request for reconsideration of 1950 resolution from Section on Ophthalmology: At the 1950 session of the House of Delegates in San Francisco, the House adopted a resolution which, in effect, reversed the 24-year position of the American Medical Association on the ethical question of members of the Association giving lectures or courses of instruction to optometrists.

This reversal was accomplished through the introduction of a resolution in 1950 from the Section on Ophthalmology which "declared that it is entirely within the definition of medical ethics for members to engage in lectures, demonstrations, the preparation of pamphlets, and other measures suitable for the dissemination of information designed to prevent blindness and directed to any nonmedical group." This resolution was referred to the Reference Committee on Miscellaneous Business, which committee returned it, recommending favorable action to the House of Delegates. It was adopted by the latter without discussion.

The Judicial Council sensed the encouragement which this favorable action offers to such groups as the optometrists in seeking, as they constantly do, legislation to expand their field of professional activity more and more into the field of medicine in eye conditions. The Judicial Council brings the subject to the attention of the House at this time, believing that such implications of the resolution favorably acted on last December may not have been fully realized by the reference committee or the 1950 House of Delegates. The Judicial Council requests reconsideration of this decision by the 1951 House of Delegates.

Respectfully submitted,

EDWARD R. CUNNIFFE, Chairman.
WALTER F. DONALDSON.
H. L. PEARSON, JR.
J. B. LUKINS.
LOUIS A. BUIE.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report, which was rejected by the House after discussion:

Your reference committee recommends that the original section and the amended section as recommended by the Judicial Council be disapproved, and that the following substitute amendment be adopted:

The receipt of profit from patents or copyrights on medical appliances or remedial agents which tempt the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients, the public or the medical profession is unethical. The acceptance of any rebates is unethical. The acceptance of commissions from attendants who aid in the care of patients is unethical. It is unethical for a physician to charge unfair or excessive prices for appliances, devices or remedies prescribed for patients. Fee splitting under any guise is unethical.

Dr. Eggston presented the following report, which was duly adopted after discussion:

Your reference committee after hearing the delegates from the Section on Ophthalmology and a majority of the other ophthalmologists present who were in favor of the resolution as passed by the House of Delegates in 1950, and after consideration of all the implications of possible invasion in the practice of medicine mentioned by the Judicial Council, approves of the action of the House of Delegates taken in 1950.

Report of Council on Medical Education and Hospitals

Dr. Herman G. Weiskotten, Chairman, presented its report which was referred to the Reference Committee on Medical Education and Hospitals (see page 865).

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. William Bates, Chairman, presented the following report which was duly adopted:

Your committee highly commends the clear cut declaration of policy and recommends that the Board of Trustees authorize through THE JOURNAL and through the department of public relations the widest possible distribution of this excellent statement.

Introduction of Dr. A. Sharman, Glasgow, Scotland

The Secretary, Dr. George F. Lull, at the request of the Speaker, Dr. F. F. Borzell, introduced Dr. A. Sharman of Glasgow, Scotland, the official delegate from the British Medical Association.

The House recessed at 12:50 p. m. to reconvene at 2:30 p. m.

The House reconvened at 2:35 p. m., with the Speaker, Dr. F. F. Borzell, presiding.

Introduction of Mr. Dave Beck

Dr. Elmer L. Henderson, President, introduced Mr. Dave Beck, Executive Vice President of the International Teamsters Union.

Report and Supplementary Report of Council on Medical Service

Dr. James R. McVay, Chairman, presented the following report and the supplementary report of the Council on Medical Service, which were referred to the Reference Committee on Insurance and Medical Service:

To the Members of the House of Delegates of the American Medical Association:

The work of the Council on Medical Service is a never ending process. It is a process set forth in the Constitution and By-Laws and includes the study and collection of data on various aspects of medical service, reporting changes and trends to the House of Delegates, the constituent associations and component societies and making such recommendations as the Council believes will improve medical care.

In retrospect many results of the activities of the Council can be seen. For example, in 1944 when the Council found a need for the development of public relations programs at the state and county levels, it held the first American Medical Association public relations conference and for several years thereafter stressed the importance of public relations programs at its regional conferences. Today the American Medical Association has its own Department of Public Relations, and most of the state associations have public relations programs. Another example is the Washington Office which was originated by the Council to keep the profession abreast of legislation affecting medicine and to keep legislators abreast of medical progress. Similarly, the American Medical Association Handbook, the Twelve Point Program, and the Student American Medical Association were all originally proposed or developed by the Council. The "Grass Roots" Conference, the Commission on Chronic Illness, the cancer detection program, and the Hill-Burton Hospital Construction program are additional examples of projects supported by the Council to further the objectives defined for it by the House of Delegates. Health centers, state and community health councils, community health leadership programs, voluntary prepayment medical care plans, emergency call programs and the Physicians Placement Service are other examples of activities with which the Council has been concerned. Some of these activities and programs are completed; others require continuing attention. Some activities have been assumed by other groups, but even in these the Council continues to have a practical interest, sometimes to the extent of making recommendations for improvement, sometimes only to the extent of reporting to the House and to the profession.

In order to cover more completely the various aspects of medical service, seven committees were created two years ago to serve the Council in an advisory capacity. The collection and study of information and data on existing services and facilities is a continuous part of the work of each committee. These committees also follow trends in medical service that fall within their particular field and, whenever problems or situations warrant, will make special reports to the Council. The primary objective of each committee is to assist the Council in developing a correlated program covering the entire field of medical service, a program through which the public can benefit best from the accomplishments of American medicine and by which the constituent associations and component societies can be assisted in strengthening their own community programs.

In order that the members of the House of Delegates may be aware of the recent activities of the Council, the following progress report is presented.

"YOU AND YOUR A. M. A."

"What are we getting for our twenty-five dollars?" is a question frequently asked by doctors in regard to the American Medical Association.

To answer this question and many others concerning the activities and plans of the Association, the Council on Medical Service proposes to "take the American Medical Association to each doctor who attends the annual session of his own state medical association."

This is the proposed plan of the Council on Medical Service: to include a period to be known as "You and Your A. M. A." in the program of each state society at its annual session.

The purpose of this program will be to inform those in attendance as to just what the American Medical Association is doing and in turn give the doctors in attendance an opportunity to state just what they would like to see the Association do. In addition to speakers, arrangements call for exhibits where suitable material can be distributed, the use of slides and a moving picture, if it can be developed, highlighting and concentrating on the work of the various Councils, departments, and Bureaus of the American Medical Association. In order that the most effective program possible may be developed, this undertaking will of necessity be with the advice and assistance of the Public Relations Department, the Bureau of Exhibits and other departments at the headquarters offices, and will be a joint effort with the individual state associations.

The Board of Trustees has approved a trial run of the program, and the Council has completed arrangements with four states in which meetings are to be held this fall—Pennsylvania, Colorado, Virginia and Indiana—to test the feasibility of offering such a program as a part of the annual meetings of those societies which may desire such programs.

The Board of Trustees memorandum relative to these four pilot programs reads as follows:

> The general principles underlying the programs submitted by the Council on Medical Service and the general outline of those programs are approved. The Board congratulates the Council on its foresight and enthusiasm.
>
> The Board urges that the various activities of the Council be brought before the doctors of the country as intensively as possible. It realizes, however, that often state societies will request discussions on matters not under the jurisdiction of the Council. It is desirable that, whenever requested, all activities of the Association be properly portrayed. However, the coordination of the activities of the various councils and bureaus and the formation of policies cannot be delegated by the Board. Hence, the final determination of all programs must remain under the jurisdiction of the Board.
>
> In order more effectively to develop and facilitate these programs, the Board delegates authority for the preliminary arrangements of these programs to the Council on Medical Service. The Council should clear and coordinate all such programs with the Department of Public Relations and the Secretary and General Manager.
>
> Whenever the final programs involve activities not within the field of the activities of the Council on Medical Service the meetings should be presided over by an officer of the Association or a member of the Board of Trustees.

COUNCIL COMMITTEES

The Committee on Extension of Hospitals and Other Facilities during the first four months of 1951 has concerned itself with: physician-hospital relations; keeping information on the Hospital Construction Act up to date and correlating it with the data used in the Physicians Placement Service; collecting information and data regarding health centers, diagnostic clinics and outpatient dispensaries and the preparation of loan kits on these subjects for use by interested physicians, and maintaining liaison with the specialty groups, particularly the radiologists, anesthesiologists and pathologists.

As a follow up to the recommendation of the House of Delegates that committees on physician-hospital relations be appointed by both constituent and component societies, the Committee has mailed a copy of the now well known Report of the Committee on Hospitals and the Practice of Medicine to all county medical societies and has made additional copies available on request. In addition, inquiry has been made to determine how many such committees are now in existence. Of the 757 county medical societies replying to the inquiry of the Committee, 263 stated they had a committee on hospital relations. A similar inquiry of the constituent associations has resulted in 33 replies as of May 1. Of these, 30 state medical associations and the District of Columbia have such committees. Two states and Hawaii are without committees, although both of the states indicated that the matter would be discussed during the next meeting of their governing bodies.

In 18 states these committees seem to have been created for the specific purpose of handling hospital and professional relations and for the most part were organized in 1949 and 1950. A few states have assigned this function to already existing committees. Several associations reported such committees had been in existence for as long as fifteen and twenty years. It is apparent, however, that the Report of the Committee on Hospitals and the Practice of Medicine has resulted not only in the formation of many physician-hospital relations committees but also in increased activity on the part of long established committees.

Twenty-two of the state association committees reported activity during 1950. Among the matters with which these committees were concerned over the past year were: (1) physician-hospital relations; (2) revision of medical practice acts; (3) conferences with Blue Shield and Blue Cross; (4) recruiting of interns and residents; (5) training programs for hospital resident staffs; (6) studies of the costs of hospitalized illness; (7) studies of indigent medical care and (8) securing hospital licensure legislation.

Of the states reporting, only six had taken action in regard to the Report of the Committee on Hospitals and the Practice of Medicine as adopted by the House of Delegates, and all of these states had supported the Report. Four others indicated that the matter would be considered by their governing bodies.

The Committee on Indigent Care reports considerable progress in its study of the various types of programs through which medical care is provided to public assistance beneficiaries and to the borderline group often referred to as medically indigent. A study schedule has been completed with the cooperation and assistance of Professor Ira V. Hiscock, Chairman of the Department of Public Health, Yale University, and his staff.

The first study, to test the adequacy of the schedule and study method, is scheduled for completion late in May. On the basis of this experience, both schedule and method will be reviewed and revised as seem indicated. During the summer months studies will be made of a variety of indigent medical care plans in selected areas and the results will be reported to the House of Delegates in December. Primary emphasis is to be given to administrative organization and medical society relationship. Just how far the Committee can go in its suggestions and recommendations should become evident as the studies progress. There is no doubt but that at the present we are still at the fact finding stage.

It may also be well to report that the Committee has made arrangements to use the services of especially qualified temporary personnel to make the studies under the supervision of a regular Council staff member.

The Committee on Maternal and Child Care has been concerned primarily with liaison with interested groups and the medical problems of dependents of servicemen.

Two members of the Committee, Drs. W. L. Crawford and Donald A. Dukelow, were among the American Medical Association representatives attending the Midcentury White House Conference on Children and Youth held in Washington, D. C., December 3 to 7, 1950. During the White House Conference contact was made with Miss Katharine Lenroot, Director of the Children's Bureau of the Federal Security Agency. One of the conversations had to do with the present military situation and the possible medical care problems of the wives and families of servicemen. It was evident that some thinking was in process as to the necessity for looking forward to a reactivation of some plan similar to the E. M. I. C. program of World War II. It seemed evident, too, that the Children's Bureau would seek the advice and cooperation of the American Medical Association in any discussions on this matter.

With this in mind the Committee on Maternal and Child Care developed a short questionnaire which it sent to all state medical associations and approximately 400 physicians, including general practitioners, obstetricians and pediatricians. The purpose of the questionnaire was to learn how the state associations felt concerning the operation of E. M. I. C. and to get the reactions of physicians who had worked under the program. The survey was not intended to be exhaustive but merely to assist the Committee if and when it was called on to participate in discussions on the reactivation of E. M. I. C., and in this the survey has been most helpful.

An informal meeting of the Committee chairman and Association staff members with representatives of the Children's Bureau was held in Chicago on February 23. At that time a meeting of the full Committee with representatives of the Children's Bureau was arranged for March 10 in Chicago.

In order to prepare for the conference with the Children's Bureau representatives, the full Committee met in Chicago on Friday, March 9, to review the responses to the questionnaire. The following day, March 10, those present at the meeting with representatives of the Children's Bureau were: the Committee members, Drs. Crawford, Truman, Mengert, Mulholland and Dukelow; guests invited by the Committee, Drs. E. H. Christopherson, Clarence H. Webb and Philip S. Barba, members of the American Academy of Pediatrics, Dr. Philip F. Williams of the American Academy of Obstetrics and Gynecology and Dr. Garland D. Murphy Jr., a member of the American Legion Child Welfare Committee; staff members, Dr. George F. Lull, Mr. Thomas A. Hendricks and Mr. George W. Cooley.

Although no formal actions were taken at either of these meetings, nor was any representative asked to commit himself or his organization, the Committee believes that from a preliminary point of view it seems reasonable to draw the following conclusions:

1. No widespread emergency exists at this time which warrants setting up a special maternal and infant care program for wives and dependents of servicemen.

2. Requests or pressures for a nationwide re-enactment of such a program are few and far between and are usually based on individual instances arising near military installations where the influx of servicemen and families has resulted in abnormal conditions. Special consideration and planning will need to be given to these particular areas.

3. Where need occurs away from military posts, help for the individual needy case can usually be obtained through one or more of the numerous existing sources of aid, such as the Army, Navy and Air Force Relief Funds and the American Red Cross. The medical society should not be omitted as a source of assistance in the form of medical service, nor should the fact be ignored that many voluntary medical and hospital service plans are continuing to cover the families of servicemen on a special basis or as a continuation of benefits by employers.

4. Despite the fact that there is little indication of urgency in this matter, the unpleasant experiences with the E. M. I. C. program in World War II certainly indicate the value of planning ahead should a similar emergency occur.

5. It is evident from the replies to the questionnaire that the former E. M. I. C. program, while reasonably satisfactory in some areas and in some aspects, left much to be desired from the point of view of the veterans as well as the medical profession.

6. Any planning that is done should include consideration of the possibility of utilizing the voluntary health insurance plans and the state medical association agencies handling Home Town Veterans Medical Care Programs.

7. Any planning that is done should not be hastily assembled but should develop only as a result of serious consideration on the part of hospital authorities, state and Federal public health administrators, veterans representatives and the state medical associations representing the physicians who supply the medical service.

On the invitation of the Children's Bureau, the Committee chairman and secretary attended a conference held in Washington, D. C., April 4. Attending this meeting were representatives of the Advisory Committee for the Children's Bureau, the Blue Cross, American Academy of Pediatrics, Association of State and Territorial Health Officers, American Academy of Obstetrics and Gynecology, American Public Health Association, Catholic Hospital Association, Protestant Hospital Association and American Medical Association.

All discussions were informal and in no way committed the agencies represented to any statement or policy. It was generally accepted that no emergency regarding the dependents of servicemen exists at the present time, and, therefore, all of the discussions were of an exploratory nature. In other words, the group was merely thinking out loud as to the problems that would need to be considered if at some future date Congress believed there was an emergency in this matter and decided to consider legislation. It was generally agreed that any program that was put into effect should come as a result of legislation and not as a result of administrative action such as occurred during World War II. This, of course, would give all organizations an opportunity to be heard on the subject rather than wake up some morning to find a going operation established by administrative edict. Certainly discussion at this conference in no way altered the conclusions noted previously. In fact, if anything, it strengthened them.

The Council would like to point out that three organizations have requested the reactivation of some sort of a medical care program for the wives and children of servicemen. Mr. Walter Reuther has expressed the U. A. W.-C. I. O. desires through a letter addressed to Senator Lehman, a member of the Senate Labor and Public Welfare Subcommittee on Health. The American Legion passed a resolution at its national convention in October of 1950 urging the "establishment of an E. M. I. C. program similar to that operated during World War II, with due consideration given to correcting any inequities which the experience developed during World War II may have revealed." The Minnesota State Legislature has expressed its desires by memorializing Congress to enact such a program.

The Committee intends to follow developments on this matter. Particular attention will be given to a need for such a drastic step and, if necessary, it will conduct one or more studies in specific problem areas for the purpose of determining the extent of such need. The Committee has also before it a suggested study program covering both maternal care and child care.

The Committee on Federal Medical Services is being expanded, both in scope and in personnel, to comply with the recommendation of the House of Delegates. The Committee has held one meeting so far this year. As a result of that meeting, the Council has approved certain activities, which include the analysis of all aspects of the several forms of medical care financed under federal offices and the establishment of liaison with both nongovernmental and governmental agencies interested in federally financed medical care.

In the matter of increased Committee personnel, the Council has considered several persons. To date, Dr. Herbert P. Ramsey, Washington, D. C., and Dr. Joseph S. Lawrence, Director of the Washington Office, have consented to serve on the Committee, the latter in an ex officio capacity.

The Council contemplates the use of this Committee in an advisory capacity on all matters pertaining to federal medical services which do not involve the specific activities of other Council committees.

The Committee on Prepayment Hospital and Medical Service has met informally with representatives of the Health Insurance Council. The purpose of these informal meetings was to discuss some of the problems inherent to voluntary health insurance. In addition, these problems have been presented to the Blue Shield Commission. Although at this time neither the Health Insurance Council nor the Blue Shield Commission has submitted any definite plans for solving some of these problems, it is anticipated that some formal meetings and some formal recommendations will result in the relatively near future.

In the field of voluntary health insurance the Council has been involved in the study of Health Insurance Plans in the United States pursuant to Senate Resolution 273, 81st Congress, Second Session. This resolution authorized a special Subcommittee on Health of the Committee on Labor and Public Welfare of the United States Senate. Dr. Dean A. Clark, Director General of the Massachusetts General Hospital and formerly Medical Director of the Health Insurance Plan of Greater New York, was named as the Consulting Director of the Subcommittee on Health. Dr. Clark is also president of the Cooperative Health Federation of America.

Only one copy of a preliminary Confidential Committee Print was made available to the Council office. This may be due to the fact that only about 50 copies were printed. The print consists of 90 pages. While the statistical data appear accurate, the first and last chapters lack the objectivity stressed during preliminary conferences.

These chapters, entitled "Summary of Findings and Recommendations" and "The Role of Medical-Care Insurance," are written in a manner that implies the superiority of conducting health insurance programs through organized service units, such as hospitals and group medical practice, with payments to professional personnel on some basis other than fee-for-service. The Council authorized a statement to be sent to Dr. Clark. The principal purpose of the statement was to suggest changes which would make the report more objective and to confine the comments to the subject. This was a "Confidential Committee Print" and the Council has respected its status. As soon as the report is filed, and therefore no longer confidential, copies of pertinent portions of the report and also copies of the Council statement will be reproduced for the members of the House of Delegates.

While it will be some time before the Health Insurance Council has completed its Survey of Accident and Health Insurance in the United States for the year 1950, reliable estimates indicate that the number of Americans having some type of hospitalization insurance at the end of 1950 was 75 million and that some 52 million Americans were enjoying the benefits of voluntary surgical care insurance.

The Council is continuing its annual revision of Voluntary Prepayment Medical Care Plans started in 1946. The fifth annual (1951) revision is now available to the profession and other interested organizations and individuals.

The Supplementary Report of the Council at the 1950 Clinical Session indicated that medical society prepayment benefit plans had been developed in all forty-eight states, the District of Columbia and the Territory of Hawaii. During the year one local plan ceased to operate and its obligations were assumed by another local organization. This does not alter the fact that medical society plans exist in all states.

In an effort to determine the extent to which the voluntary health insurance plans made coverage available to dependents of military personnel, a special survey was undertaken. Of seventy-five returns, 67 plans continue coverage for dependents of military personnel and one plan is giving consideration to doing so. In most instances the coverage must have been in effect prior to the time the primary subscriber enters military service. Also, all 67 plans permit reinstatement of the coverage for the subscriber on his separation from military service. This normally requires a reinstatement application.

The Council's exhibit on Voluntary Health Insurance has been shown at five meetings since the last Annual Session. These were meetings of the Montana State Medical Association, the Indiana State Medical Association, the American Public Health Association, the American Academy of General Practice and the Illinois State Medical Society. This exhibit is being revised from time to time in the light of newer data and is currently being shown at booth 501 in the Scientific Exhibit.

The Committee on Relations with Lay Sponsored Voluntary Health Plans has held one meeting in Chicago subsequent to the meeting at the time of the Clinical Session in Cleveland. At that Clinical Session the House of Delegates approved a certain procedure for handling an application submitted on behalf of any lay sponsored voluntary health plan within the purview of the Twenty Principles.

One application is on file and the Committee on Relations with Lay Sponsored Voluntary Health Plans has been authorized to collect such data concerning the plan as it deems necessary before making recommendations to the Council. Since these additional data have not been supplied to the Committee, the Committee has been unable to make any recommendations to the Council and, consequently, the Council is not yet in a position to report definitely to the House.

Another problem before the Committee is the annotation of the Twenty Principles. The Council has accepted the recommendation of the Committee that annotation of the Twenty Principles should be withheld until such time as action has been taken on the pending application.

As additional information is supplied and as developments take place, they will be reported promptly by the Council to the House.

The Committee on Medical Care for Industrial Workers has concerned itself primarily, during the past four months, with a continuation of its study of temporary cash sickness benefits and the legislation enacted in California, Rhode Island, New Jersey and New York. Following through on the recommendation of the House of Delegates in December 1950, the Committee has completed a digest of the information that the Council staff has assembled. This is included in a Progress Report on Temporary Cash Sickness Benefits and Related Legislation, which has been sent, as suggested, to every member of the House of Delegates.

In response to requests from several state associations, the Committee prepared voluminous kits of material and sent them to these associations on a loan basis. As new material becomes available, it is added to these kits so as to keep them up to date.

Plans are under way for studies of a number of industrial and union programs providing medical care for industrial workers.

OTHER ACTIVITIES

The Physicians Placement Service continues to function effectively in cooperation with and as a supplement to the various state medical association placement services. For the most part the number of requests from communities seeking a physician is decreasing, and it would seem, at least compared to two or three years ago, that the distribution problem is slowly being met. This does not mean that there is an oversupply of physicians nor that there are yet enough physicians seeking locations to fill openings already available. It does mean, however, that at present the number of requests for openings during a given month is greater than the number of new requests for physicians during the same period.

The Placement Service has made particular effort during the past few months to obtain specific information as to what communities can and will do to attract a physician. It is interesting to note that in a majority of instances communities are making home or office facilities available, often either or both are rent free for a reasonable period of time. Undoubtedly, recent popular magazine articles describing what communities have done to attract physicians have had some effect on local attitudes. It may be too that the booklet which the Council sends to communities seeking physicians has had some effect in making these communities aware not only of their responsibilities but also of what can and is being done to attract able medical men.

Three projects are under discussion at the present time: one has to do with the American Medical Association establishing a revolving fund from which young physicians might borrow provided they agree to locate in certain strategic or critical areas; another has to do with several pilot studies designed to provide specific information and details concerning the steps that communities can take to attract physicians; and a third is concerned with a study of the financial needs of physicians at the time they finish their internships or residencies.

Distribution of Material: During the last three months of 1950 and the first four months of 1951 the Council distributed approximately 150,000 pieces of reference material in response to requests. In order to get material into school and public libraries without sending a very large and probably wasteful mailing, the Council has this year listed a number of key items with the Educators Progress Service and the H. W. Wilson Company. The Progress Service publishes the Educators Index of Free Materials for both elementary and secondary schools. The H. W. Wilson Company publishes the Vertical File Service Catalog for libraries. As a result of these listings, the number of requests from school and public libraries has increased tremendously.

Health insurance and socialized medicine continue to be the most popular and account for more than three-fourths of the requests. Of the loan kits on such subjects as group practice, health councils, cash sickness benefits and indigent care, the Group Practice Kit is most in demand.

Survey of County Medical Society Activities: The Council is continually called on for information concerning the organization and operation of activities carried on by county medical societies or in which county societies participate or cooperate with other groups. To keep up to date on these activities the Council has conducted a second general survey covering 757 county societies distributed throughout the forty-eight states. This is 502 more than the Council included in the first survey made in 1948 and, therefore, provides much more information than did the 1948 survey.

The 757 societies in the survey included 582 with less than 100 members (Group I); 72 with between 100 and 200 members (Group II); 37 between 200 and 300 members (Group III); and 65 with over 300 members (Group IV). The information obtained is tabulated according to these four groups so as to be of practical assistance to medical societies of all sizes. Total tabulation of some of the activities included in the survey shows that:

757 societies have regularly scheduled scientific programs;
263 societies sponsor postgraduate programs;
523 societies report library facilities are available to members;
545 societies participate in tuberculosis control programs;
503 societies participate in pre-school examinations;
448 societies participate in maintenance of blood banks;
533 societies participate in cancer control programs;
367 societies cooperate in a diabetes detection program;
149 societies cooperate in a rheumatic fever control program;
76 societies are experimenting with multiphasic screening;
364 societies have emergency call plans;
366 societies have grievance committees, and
296 societies have group accident and health insurance plans.

These, of course, are but a portion of the items. The complete story of the survey has been mimeographed for use by county medical society officers and is available to others on request.

Medical Service News Letter: The Council is seriously considering again publishing a monthly or quarterly news letter to apprise state and local committees of developments in the medical service field. A medium such as this is especially needed today, because many of the state medical associations and county societies have created committees paralleling the seven Council Committees. A news letter not only will bring about closer liaison between these committees at the various levels but will keep them continuously informed on such subjects as voluntary health insurance, cash sickness benefits legislation, and physician-hospital relations.

Staff Personnel: The Council has kept in mind the statement of the Chairman of the Board of Trustees last June and the recommendations of the Reference Committee on Insurance and Medical Service last December in regard to increasing its staff. On May 1 the Council employed Mr. Russell Staudacher as a staff assistant. Mr. Staudacher was formerly Associate Public Relations Counsel for the Michigan State Medical Society and in this capacity had considerable experience with the type of activities with which the Council is concerned. A number of other individuals have been considered, but because of the experience requirements, it is going to take time to augment the Council staff with qualified personnel.

SUPPLEMENTARY REPORT

Your attention is invited to the Report of the Council on Medical Service, especially to the program suggested by the Council, entitled "You and Your A. M. A."

Your attention is also invited to the comments on the Physicians Placement Service. A further report on this subject including a discussion of the feasibility of a revolving fund to assist physicians in locating in areas needing medical services has been presented to the Board of Trustees.

In addition to the above remarks concerning the Council's Report the attention of the members of the House of Delegates is invited to the attached "Supplemental Information on Temporary Disability Benefits."

In the report of the Council, mention is made of the fact that a "Progress Report on Temporary Cash Sickness Benefits and Related Legislation" has been sent to each member of the House of Delegates in keeping with the recommendation of the House in December 1950.

The Council at this time invites the attention of the delegates to two items of information received subsequent to the mailing of the report. In that report it is stated that "So far, in the four states which have such laws the medical profession and medical associations have given neither active support nor active opposition to the proposals." This referred to Rhode Island, California, New Jersey, and New York. The state medical association in each of these states was asked to comment on this statement within a specified time to permit mailing of the report prior to May 15. While no replies were received within the dateline set, since then the California Medical Association and Rhode Island Medical Society have replied in part as follows:

California

> The California Medical Association actively and vigorously opposed the establishment of the cash sickness disability law four years ago and the bill was passed through the legislature only after the insurance carriers who had sided with us had agreed to withdraw their opposition if they were permitted to participate in the underwriting program. That left the C. M. A. as the sole opponent to the measure and we weren't strong enough by ourselves to stop it.
>
> Two years ago we opposed the addition of hospital benefits to the original-bill. The hospital association joined with us in this opposition and we had the bill stymied until the few last days of the legislature, when a watered down bill was put through. This version removed many of our original objections and we found it impossible to stop its passage, especially since labor was crying for the application for its own purposes of funds contributed solely by employees.
>
> I think you should have that record on our opposition. On page 10 of your report you mention that business and insurance interests were opposed to the legislation but omitted our opposition. We have been and still are fearful that this type of legislation is the entering wedge for compulsory health insurance and that future amendments may be tacked on to increase the tax receipts and widen the services provided. As a matter of fact, the insurance carriers and labor unions this year agreed among themselves to approve an increase in the employees' tax rate to 1½% from 1% and to provide additional indemnities in the event of unemployment resulting from disability.

Rhode Island

> We are concerned with the first paragraph under the heading Group Five on page 8.
>
> A statement is made that "So far, in the four states which have such laws the medical profession and medical associations have given neither active support nor active opposition to the proposals."
>
> It is not clear to us what is meant by the word "proposals." We did not support or oppose the initial legislation. However, we have given active support to the program once it was established by the State of Rhode Island, and we have continued to seek to improve the program throughout the years. It was my belief that there was excellent cooperation in California, since the medical association was aware of our proposals and took an actve part in preparing the preliminary phases of the California Disability Plan once it had been enacted.
>
> Therefore, we would urge that the word "proposals" be clarified and also that mention be made, in so far as we are concerned, that the Rhode Island Medical Society has given active support to the state government in the carrying out of the medical phases of the Rhode Island Temporary Disability Insurance.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. William R. Brooksher, Chairman, presented the following report, which was duly adopted:

The progress report of the Council on Medical Service details the many fields in which the Council is at present engaged. Your committee is hopeful that the project "You and Your A .M. A." will receive hearty support from the constituent state associations. The continuing work of the respective subcommittees of the Council on Medical Service is commended.

The Council proposes to publish a newsletter on developments in the medical service field. Your committee received a resolution from the Ohio State Medical Association proposing regular dissemination of health insurance news in a publication of the American Medical Association. Your committee recommends that space be made available in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION which the Council on Medical Service may use for the regular presentation of medical service and health insurance activities.

Proposed Amendment to By-Laws

Dr. H. Russell Brown, South Dakota, presented the following proposed amendment to Chapter XIII, Section 1:

Amend Chapter XIII, Section 1, to read: Composition.—The Board of Trustees shall consist of nine elected Trustees, the President and President-Elect. The Vice President, Secretary, Treasurer, Speaker, Vice Speaker, General Manager and Editor of THE JOURNAL may attend meetings of the Board.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO CONSTITUTION AND BY-LAWS

Dr. Robertson Ward, Chairman, presented the following report, which was duly adopted and the Speaker announced the By-Laws thus amended:

Referred to this committee was a resolution by Dr. Brown of South Dakota to amend the By-Laws in such fashion as to change the composition of the Board of Trustees by adding the President and the President-Elect. This same matter had been the subject of a study by the Interim Committee on Constitution and By-Laws on a similar resolution introduced by Dr. Brooksher of Arkansas at the last session of the House of Delegates. After a thorough discussion, participated in by Dr. McCarthy, the Chairman of the Interim Committee, this committee reached the conclusion that, in keeping with the practices of most large corporations and those of many of the constituent state medical associations, this was a desirable procedure. It therefore recommends the adoption of this change in the By-Laws, Chapter XIII, Section 1, so that it will read as follows:

> Section 1. Composition.—The Board of Trustees shall consist of nine elected trustees, as provided in Article 7 of the Constitution, the President and the President-Elect. The Vice President, the Secretary, the Treasurer, the Speaker, the Vice Speaker, the General Manager and the Editor of THE JOURNAL may attend meetings of the Board.

Resolution on Medical Supervision of Curative Workshops

Dr. Frank H. Krusen, Section on Physical Medicine and Rehabilitation, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Certain high-minded citizens have organized in various communities throughout the United States certain institutions known variously as curative workshops, institutes of rehabilitation, or rehabilitation centers in which both physical therapy and occupational therapy are employed in the treatment of sick and disabled persons; and

WHEREAS, Such curative workshops, institutes of rehabilitation or rehabilitation centers have in a number of instances failed to provide adequate direct medical supervision of the lay therapists who provide the physical therapy and occupational therapy; and

WHEREAS, Certain state medical societies have requested an explanation of the point of view of the American Medical Association concerning adequate medical supervision of such organizations; and

WHEREAS, The Council on Physical Medicine and Rehabilitation of the American Medical Association has expressed the opinion that all facilites which provide services in physical therapy and occupational therapy should be under the direct supervision of a properly qualified and duly licensed physician; therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as recommending that all curative workshops, institutes of rehabilitation, rehabilitation centers and other organizations of a similar nature which provide services in physical therapy and occupational therapy shall conduct such medical treatment under the direct supervision of a properly qualified and licensed physician.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report, which was duly adopted:

Your reference committee approves of this resolution.

Resolutions on Lay Advertising

Dr. R. J. Azzari, for the Medical Society of the State of New York, submitted the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Certain advertising material is being distributed in various parts of the United States; and

WHEREAS, This advertising extols the choice of a specialist in obstetrics and a specialist in pediatrics as compared with the choice of a general practitioner for the care of maternity and pediatric patients; and

WHEREAS, Said advertising extols hospitals approved by the American College of Surgeons as compared with others that may not be so approved; and

WHEREAS, Certain advice regarding sexual intercourse, certain comments on premature delivery, certain illustrations of vertex and breech presentations are contained in these publications; therefore be it

Resolved, That the House of Delegates of the American Medical Association deprecates the spirit and inferences contained in such advertising matter, the unjust discrimination against general practitioners, those who have educated them, and the governmental bodies which have licensed them; and be it further

Resolved, That the Board of Trustees of the American Medical Association request the Better Business Bureaus, the United States Chamber of Commerce, or any other appropriate body, to use its influence toward accomplishing the cessation of such biased advertising.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented a report, which, including the following substitute resolution, was duly adopted:

WHEREAS, A large amount of advertising by pharmaceutical houses and other business and promotional programs, including those selling maternal and layette supplies, has in many instances been objectionable and not in the best interest of the public; and

WHEREAS, Certain statements concerning medical practice are inaccurately presented and appeal in varying instances to the public, by-passing the medical profession and disregarding established standards; therefore be it

Resolved, That the House of Delegates recommends to advertising agencies that they make all efforts possible to correlate their advertising programs with the principles of the best practice of modern medicine.

Your Reference Committee recommends that this substitute resolution be adopted instead of the Resolution on Lay Advertising and Resolution on Sales Promotion Methods of Pharmaceutical Houses.

Resolution on Restricted Membership

Dr. Andrew A. Eggston, New York, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Resolved, That the House of Delegates of the American Medical Association request the Secretary and the officers to collect, organize and make available to interested constituent state associations and component county societies, for their guidance and assistance, all pertinent information and experiences bearing on possible restrictions to membership based on race or religion.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report, which was duly adopted:

As this question is being considered in the communities involved and progress has been made, and since membership should be considered on a local, not a national level, your reference committee disapproves of this resolution.

Resolution on Approval of Program for Promotion of Research, Education and Preventive Service

Dr. William L. Benedict, Section on Ophthalmology, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, It is estimated that 260,000 Americans are blind and many hundreds of thousands more are severely visually handicapped; and

WHEREAS, Much of this blindness could be prevented by research to improve methods of diagnosis, treatment and prevention, by education of the public and other groups and by promoting the provision of such preventive services as vision-testing of children, industrial eye programs and social service follow-up; and

WHEREAS, The National Society for the Prevention of Blindness was organized in 1908 to unite lay and professional forces in an all-out attack against unnecessary blindness and has carried on its program over the years, working closely with the medical profession and all interested groups; therefore be it

Resolved, That the American Medical Association approve the program of the National Society for the Prevention of Blindness for the promotion of research, education and preventive service.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report, which was duly adopted:

Your reference committee approves this resolution.

Resolution on Costs of All Technical and Professional Training

Dr. E. F. Hoffman, California, submitted the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, It is good accounting practice for business organizations to establish the costs required to create the going concern and to depreciate this capital initial cost over an appropriate period; and

WHEREAS, This procedure has met with the approval of the Department of Internal Revenue and is customary; and

WHEREAS, The costs of a professional education are dispersed over a period of years during which there is no income to offset these costs; and

WHEREAS, These costs represent a capitalization charge which thus constitutes a taxable loss to the individual; and

WHEREAS, All occupational training expenses are now neglected in this fashion; now, therefore, be it

Resolved, That the American Medical Association seek appropriate legislation to authorize the establishment, for tax purposes, of the costs of all technical and professional training to be amortized over an appropriate period.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. L. G. Christian, Chairman, presented the following report, which was duly adopted:

After thoughtful deliberation, your committee believes that the problems involved in this resolution are so complex that action should be deferred until the matter has received consideration by the Board of Trustees. Your committee recommends, therefore, that this resolution be referred to the Board of Trustees.

Resolution on Investigation of School System

Dr. E. F. Hoffman, California, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Whereas, The American Medical Association, its constituent state associations and the component county associations thereof are now and have been for some time engaged in a bitter and grueling struggle to prevent the socialization of medicine with its inevitable accompaniment of the ultimate disintegration and destruction of good scientific care; and

Whereas, The socialization of medicine is just one phase of a long-range plan to collectivize every phase of our economic and social structure; and

Whereas, Many of our educators and many of the organizations to which they belong have for many years conducted an active, aggressive campaign to indoctrinate their students in grammar school, high school and college with the insidious and destructive tenets of the welfare state, beginning with John Dewey and the philosophy of progressive education as promulgated by the Columbia University Teachers College, this teaching of hatred and scorn for the American system of private enterprise having been so widespread and successful that as a result our voters are conditioned to accept all manner of totalitarian expedients in direct violation of economic law; and

Whereas, The Sons of the American Revolution presented to the last Congress a Bill of Grievances, setting forth specific instances of such teachings by individuals and the subversive textbooks to implement such teachings, and calling for a Congressional investigation of such teachings to the end that proper remedial steps might be taken; now therefore be it

Resolved, That the American Medical Association be requested to call on Congress to make a thorough investigation of our entire school system with particular reference to the teachers and authors of text-books advocating the overthrow of the American system of free enterprise by the infiltration of the un-American fallacies of collectivism.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. L. G. Christian, Chairman, presented the following report, which was duly adopted:

The resolution introduced by Dr. E. F. Hoffman, California, has been amended with the approval of Dr. Hoffman and now reads as follows:

Whereas, The American Medical Association, its constituent state associations and the component county associations thereof are now and have been for some time engaged in a bitter and grueling struggle to prevent the socialization of medicine with its inevitable accompaniment of the ultimate disintegration and destruction of good scientific care; and

Whereas, The socialization of medicine is just one phase of a long-range plan to collectivize every phase of our economc and social structure; and

Whereas, Many of our educators and many of the organizations to which they belong have for many years conducted an active, aggressive campaign to indoctrinate their students in grammar school, high school and college with the insidious and destructive tenets of the welfare state, this teaching of hatred and scorn for the American system of private enterprise having been so widespread and successful that as a result our voters are conditioned to accept all manner of totalitarian expedients in direct violation of economic law; and

Whereas, The Sons of the American Revolution presented to the last Congress a Bill of Grievances, setting forth specific instances of such teachings by individuals and the subversive textbooks to implement such teachings, and calling for a Congressional investigation of such teachings to the end that proper remedial steps may be taken; therefore be it

Resolved, That the American Medical Association endorse the principle of requesting the Congress to make a thorough investigation of our entire school system, with particular reference to the teachers and authors of textbooks advocating the overthrow of the American system of free enterprise by the infiltration of un-American fallacies of collectivism; and be it further

Resolved, That a copy of this resolution be sent to the President, the Vice President and members of the United States Senate and the House of Representatives.

Resolution on Pension Plans and Profit Sharing Trusts

Dr. William D. Stovall, Wisconsin, submitted the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Whereas, The Internal Revenue Code provides for special treatment in the case of pension plans and profit sharing trusts adopted by employers for the benefit of employees to the extent that the contributions of the employer to the pension plan, or profit sharing trust, are deductible by the employer as expense for Federal income tax purposes, and to the further extent that the benefits accruing to the employee under the pension plan, or profit sharing trust, do not constitute taxable income to said employee until he receives actual distribution from the pension plan, or profit sharing trust, at which time the actual distributions are taxable income; and

Whereas, Such aforementioned provisions with respect to pension plans and profit sharing trusts permit employees and officers of corporations who are in high personal income tax brackets actually to receive a portion of their compensation in the form of pension plan benefits, or profit sharing trust benefits, without the payment of personal income tax thereon at the time the benefit is provided by the employer; and

Whereas, Such procedure permits employees in high income tax brackets to provide for retirement which would be impossible were they to attempt personally to provide for retirement out of income remaining after payment of Federal personal income taxes at high rates; and

Whereas, The Federal income tax law in the case of profit sharing trusts permits the annual benefit provided for employees of corporations to attain a level of 15 per cent of the compensation otherwise received; and

Whereas, These pension plan and profit sharing benefits are not available to self-employed business and professional men, whether partners or sole proprietors, and there is no reason for such arbitrary discrimination; now, therefore, be it

Resolved, That this Association does recommend that the Congress of the United States amend the Federal Income Tax Code to provide—

(*a*) All self-employed business and professional men, including partners and sole proprietors, be permitted to set aside for purposes of retirement up to, but not exceeding, fifteen per cent of their annual income each year under a set plan and formula filed with the Bureau of Internal Revenue, said amount so set aside to be a deduction for Federal income tax purposes.

(*b*) On the self-employed individual drawing on the amount so set aside in accordance with the provisions of the plan provided, the amount so drawn becomes taxable income to him, or to his heirs, even as is now provided with respect to benefits actually paid to employees out of pension plans and profit sharing trusts under the Internal Revenue Code.

Resolution on Pension Plans By Corporations

Dr. W. H. Huron, Michigan, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Whereas, Present laws allow pension plans by corporations for both executive and labor groups; and

Whereas, The earning power of professional people is crowded into a relatively short span of years which places them in a higher income bracket during that time with little opportunity under present high income taxes to create a pension for themselves; therefore be it

Resolved, That the American Medical Association seek to remove present discrimination against professional people in matters of income tax levies by joining with the American Bar Association and other professional groups to initiate legislation in Congress which will amend the existing pension trust provisions so as to permit partners and individual proprietors to formulate pension plans, the costs of which are deductible in computing income tax, but to be subject to taxation when the trust is effective.

Resolutions on Retirement Benefits for Professional Persons

Dr. W. P. Anderton, New York, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Whereas, The present high levels of federal taxation on earned income make it virtually impossible for professional persons and other recipients of earned income to provide from this income for retirement; and

Whereas, The problem of providing retirement benefits has to a great extent been solved for corporate employees by Section 165 of the U. S. Internal Revenue Code; and

Whereas, The need for such retirement benefits is equally great in the case of professional persons and other persons having earned income but not covered by a pension plan; and

Whereas, The American Bar Association has made a special study and has prepared legislation to be submitted to Congress aimed at making available retirement benefits for those persons having earned income but not covered by a pension plan; therefore be it

Resolved, That the House of Delegates of the American Medical Association urge the Board of Trustees to support and seek to participate in all measures that may facilitate the enactment of such legislation into law; and be it further

Resolved, That this House of Delegates approve in principle United States House of Representatives Bill No. 3456, introduced by Mr. Frederic R. Coudert, Jr., 17th District, New York.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. L. G. Christian, Chairman, submitted the following report, which was duly adopted:

Your reference committee has given careful consideration to the three resolutions referred to it relating to pension plans for physicians, introduced by Dr. Huron of Michigan, Dr. Anderton of New York and Dr. Stovall of Wisconsin. Since all of these resolutions deal with the same subject matter, they were considered jointly.

The objective sought is to establish a procedure whereby physicians and members of other professional groups may during their most productive years provide for their old age and less productive years by the purchase of retirement benefits with tax deferred income, the benefits being taxable when received. Such a procedure is presently available for the benefit of employees and officers of corporations but not to taxpayers who are self-employed.

The Board of Trustees in February, 1948, gave consideration to a somewhat similar proposal and approved it in principle. At a subsequent meeting of the House of Delegates, also in 1948, the action of the Board was expressly commended by the House. Since that time the directors of the Bureau of Medical Economic Research and of the Bureau of Legal Medicine and Legislation have had a number of conferences with representatives of the American Bar Association and of the Association of the Bar of New York City in an effort to develop appropriate legislation for presentation to Congress. Your Reference Committee has been informed that the draft of legislation being prepared by a special committee of the American Bar Association is approaching final form which will be introduced in the Congress in the near future.

There have been introduced in the Congress from time to time a number of bills dealing with this subject. There are now pending the bill referred to in the New York resolution, H. R. 3456 and another introduced within the last several days. Your reference committee does not believe it timely for the House to express its support of any particular bill. It does recommend that the House re-emphasize its 1948 endorsement of the principle embodied in this proposal, with a reasonable ceiling on the amount of the retirement benefit and that the Board of Trustees be requested to continue its efforts in support of this principle, giving special consideration to any legislation formulated by the American Bar Association.

Resolution on Appointments to the Commission on Accreditation of Hospitals

Dr. C. A. Nafe, Indiana, presented the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, There has been a tendency on the part of some hospitals in some parts of the United States to limit staff membership and deny to general practitioners the facilities of those hospitals; and

WHEREAS, There is no specific provision in the establishment of the Joint Commission on Accreditation of Hospitals for representation of the general practitioner, while there is for the surgeon and internist; and

WHEREAS, It is to the best interest of the medical profession and of the public generally to maintain proper hospital facilities for general practitioners to care for the patients; therefore be it

Resolved, That this House of Delegates request that an adequate number of general practitioners be appointed at all times to the Joint Commission on Accreditation of Hospitals.

(For report of Reference Committee on Medical Education and Hospitals, see its report under Report of Board of Trustees.)

Resolutions on Hospital Standardization

Dr. Ralph A. Johnson, Michigan, presented the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The American Medical Association has long conducted the inspection of hospitals with reference to their desirability for intern and resident training; be it

Resolved, That this House of Delegates believes that the American Medical Association should extend that inspection service to include the inspection of all portions of hospital care and looking to the standardization of hospitals; and be it further

Resolved, That the Board of Trustees be and is hereby directed to implement this policy and to proceed to the general inspection of hospitals inviting the cooperation of any other national organizations which have an interest in this problem.

(For report of Reference Committee on Medical Education and Hospitals, see its report under Report of Board of Trustees.)

Resolution on Preceptorship for Medical Students

Dr. R. Stanley Kneeshaw, California, presented the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The training of the medical student today in the science of medicine is of the highest caliber, but that training does not include instruction in the art of practice or in the basic economics so essential in modern society; and

WHEREAS, This essential fundamental training could well be provided by a system of preceptorship in which the student would be placed under the guidance of a successful practitioner in his locality, such allocation to be made by the county medical society with the aid of registration facilities provided by the Student American Medical Association; now therefore be it

Resolved, That the Board of Trustees be requested to establish a system of preceptorship for the instruction of medical students in the art and economics of the practice of medicine, such a system to be organized within the framework of the Student American Medical Association and with the aid and approval of the local county society.

Report of Reference Committee on Medical Education and Hospitals

Dr. William Bates, Chairman, presented the following report, which was duly adopted:

Your committee is in complete sympathy with the intent of this resolution. It should be pointed out that already fourteen medical schools have adopted the preceptorship idea. The committee recommends that at the national level the Council on Medical Education and Hospitals continue its study of preceptorships, and that it invite representatives of the Student American Medical Association to sit in at its meetings. Details of the system of preceptorships must necessarily vary in different communities and your committee recommends that such details be left to the individual deans' committees of medical schools, the local chapter of the Student American Medical Association and the local county and/or state medical society.

Resolution on National Education Fund

Dr. Leo F. Schiff, for the Medical Society of the State of New York, submitted the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The American Medical Association is actively engaged in a campaign to raise funds for the maintenance of medical education without governmental support and control; and

WHEREAS, All physicians regardless of their school of graduation are being asked to contribute annually to this fund; and

WHEREAS, Such contributions by individual doctors will tend to discourage contributions by them to schools of their choice as alumni of such schools; and

WHEREAS, Many schools depend to a great extent on their alumni for continued financial support; and

WHEREAS, Such alumni support varies widely in different schools both as to percentage of contributing alumni and sums contributed; therefore be it

Resolved, That the House of Delegates of the American Medical Association urge the American Medical Education Foundation to accept contributions in such manner as to permit the allocation of all or any part of a contribution to a particular medical school at the request of the contributor.

Report of Reference Committee on Medical Education and Hospitals

Dr. William Bates, Chairman, submitted the following report, which was duly adopted:

As the Chairman of the American Medical Education Foundation has already announced to this House that the purpose of this resolution, the allocation of all or any part of any individual's contribution to a particular medical school at the request of the contributor, has already been arranged for and plans made for implementing it, your Committee approves of the action taken by the American Medical Education Foundation and commends the Medical Society of the State of New York for its constructive thinking as demonstrated by its resolution.

Resolutions on Blue Shield

Dr. R. L. Novy, Michigan, presented the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

WHEREAS, Certain organized medical societies throughout the country have caused to be created seventy-four (74) nonprofit voluntary prepayment plans known collectively as the Blue Shield plans to meet the costs of medical care for major or serious illnesses; and

WHEREAS, This Blue Shield movement has met with widespread public approval now covering over 20 million people, having grown in size 35 per cent in the past year; and

WHEREAS, Over 100,000 practicing physicians are participating physicians in these plans; and

WHEREAS, Over 725 practicing physicians on the various governing boards of the Blue Shield plans are giving their time and counsel to direct and further increase the usefulness of these plans in the public interest; and

WHEREAS, In this House of Delegates of the American Medical Association nearly one-third of the members are serving not only organized medicine but also serving in official policy-shaping capacity for the Blue Shield plans; therefore be it

Resolved, That the House of Delegates of the American Medical Association in annual session assembled does hereby express its appreciation and extend its congratulations to the several sponsoring medical societies for the constructive, positive program known as the Blue Shield plans that they have so admirably and wisely initiated and continue to develop in the public interest; and be it further

Resolved, That this House of Delegates expresses itself as cognizant of the responsibility these societies have unselfishly assumed in administering a great public trust in behalf of the medical profession and for the benefit of the American people.

Report of Reference Committee on Insurance and Medical Service

Dr. William R. Brooksher, Chairman, submitted the following report, which was duly adopted:

Your committee recommends approval of this resolution with amendments to provide that approval, commendation and congratulations be extended not only to the medical societies sponsoring Blue Shield Medical Care Plans but to those medical societies that sponsor other plans for the provision of the cost of medical care for major and serious illnesses.

Resolution on Insurance Reporting Forms

Dr. R. L. Novy, Michigan, submitted the following resolution, which was finally referred to the Reference Committee on Miscellaneous Business:

Whereas, In many cases insurance reporting forms of commercial insurance companies are unduly long, require excessive duplication and thus make completion of these forms unnecessarily time consuming; and

Whereas, Difficulty lies in obtaining cooperation towards shortening these forms by any state medical society due to the national character of the insurance companies; and

Whereas, For any state to adopt a uniform reporting form would be unsatisfactory to insurance companies; and

Whereas, This problem is not unique to Michigan doctors but is common to all members of the medical profession; therefore be it

Resolved, That the American Medical Association consider this problem and in collaboration with insurance companies of America develop mutually satisfactory reporting forms of a more efficient and shortened variety.

Report of Reference Committee on Miscellaneous Business

Dr. Andrew A. Eggston, Chairman, submitted the following report, which was duly adopted:

Your reference committee invites your attention to the fact that certain simplified forms have already been approved by the Council on Medical Service. This information appears not to be generally known and the Council on Medical Service is requested to supply each constituent medical association with copies of these simplified forms.

Your reference committee, with the above comments, approves of this resolution.

Resolution on Medical Prepayment Plans

Dr. H. P. Ramsey, District of Columbia, submitted the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

Whereas, The growth of medical prepayment plans sponsored by medical societies is a source of great satisfaction; and

Whereas, The growth has revealed the strength and weaknesses of these plans; and

Whereas, Critical years are ahead for medical prepayment plans and the sympathetic understanding and cooperation of all physicians is essential; and

Whereas, It is vitally important that the best possible relationship should exist between the American Medical Association and the plans sponsored by medical societies; therefore be it

Resolved, That the House of Delegates authorize the creation of a special committee to study the relationships between the American Medical Association and medical society-sponsored prepayment plans, and that it submit its findings to the House at the Interim Session in Los Angeles.

Report of Reference Committee on Insurance and Medical Service

Dr. William R. Brooksher, Chairman, presented the following report, which was laid on the table:

Your reference committee believes that such a study should be conducted by the already established Council on Medical Service of the American Medical Association and recommends that it be directed to conduct the proposed study and to report its findings at the Clinical Session in Los Angeles.

Resolution on Distribution of Medical Care

Dr. William F. Costello, New Jersey, presented the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

Whereas, The Twelve Point Program of the American Medical Association for the Advancement of Medicine and Public Health contains the following recommendation, in Point Number 3, relating to voluntary insurance:

"Further development and wider coverage by voluntary hospital and medical care plans to meet the costs of illness, with extension as rapidly as possible into rural areas. Aid through the states to the indigent and medically indigent by the utilization of voluntary hospital and medical care plans with local administration and local determination of needs"; and

Whereas, *The American Medical Association has steadfastly maintained* that the problem of assuring adequate medical care to all the people can be solved without resort to any national legislation that would establish a governmental monopoly in the provision of medical service or impose governmental dictation and control over the practice of medicine; and

Whereas, The American Medical Association believes that, as a matter of sound public policy, all agencies of government should stimulate and encourage the voluntary cooperative agencies created by the people to solve their social problems, never supplanting or superseding such agencies; and

Whereas, The American Medical Association recognizes an obligation to translate *into action its declared purposes concerning the* "further development," "wider coverage," and "extension" of voluntary hospital and medical care plans; *therefore be it*

Resolved, By the House of Delegates of the American Medical Association, in annual meeting assembled in Atlantic City this 11th day of June, 1951, that the following statement and proposals be approved and promulgated as the official action program of the American Medical Association.

PREAMBLE

The American Medical Association favors, and always has favored, a constructive approach to the solution of the national health problem. The solution of medical and health problems should be undertaken in a realistic, scientific spirit. Moreover, since the health of the people transcends all political considerations, it must be considered on a nonpartisan basis.

The American Medical Association believes there are areas in which government may beneficially cooperate with the citizens, individually or acting through voluntary assocations, in furthering a health program in the interest of all the people, and without jeopardy to individual liberty. It is generally recognized that voluntary cooperative effort should have priority at all times. Government should seek to promote and supplement the efforts of free citizens (not to supplant or supersede voluntary action), whenever voluntary cooperative effort can meet the need.

Any constructive approach to solution of the health problem must take into account the several classifications of those who require medical care, namely, (1) those who are able to sustain the full cost of providing for hospital and medical care, (2) those who are employed for wages and salaries in the medium income brackets, (3) the "medically indigent," whose income does not suffice to meet the costs of catastrophic illnesses, (4) the totally indigent, who are on public assistance rolls, and (5) the chronically ill.

Any adequate program to meet health needs should include medical and hospital care. Insofar as possible, such care should be so inclusive that everyone may budget in advance against the financial burden of sudden illness. In addition, the program should assure every community of basic health protection through well-organized professional public health departments.

No matter what program is devised, it should be experimental, flexible and evolutionary in character. It should be sufficiently concrete as to be readily understood and practically adaptable everywhere.

The American Medical Association, therefore, offers the following proposals for a cooperative health program, in which national, state and local governments may participate, without endangering individual initiative, personal freedom or scientific progress. The sequence in which this program is set forth does not necessarily indicate the relative importance of its parts.

PROGRAM

1. Voluntary nonprofit organizations should be used as the best means of budgeting hospital and medical service for the individual and his family.

(*a*) The Blue Cross movement, providing for hospital care on a nonprofit, minimum cost basis, is recognized as the outstanding development in this direction. Blue Cross has extended to nearly every part of the United States. There are now 96 Blue Cross organizations with a combined enrolment of more than 35 million people.

(*b*) The Blue Shield movement, launched within the past decade, has made possible the prepayment of medical care on a budget basis, which in some areas means that the doctor's bill for eligible care is covered in full for 80% of subscribers and their dependents, of whom there are now more than 12 million persons enrolled throughout the United States.

2. For persons able and willing, at their own expense, to meet the cost of enrolment in such voluntary nonprofit organizations, we propose that the premiums be made eligible for deduction for income tax purposes, regardless of the financial status of the subscriber or the amount of the premium paid.

Such deduction is equitable, inasmuch as employers who pay or contribute to the enrolment cost for their employees are already permitted to deduct these costs for income tax purposes, in cases where the latter enters into the computation of Federal income tax.

3. For employed groups, it is encouraging to note the growing practice of the employer contributing toward the cost of health and welfare programs for his employees and dependents. As mentioned, such payments are usually tax-deductible as part of the cost of production, and are being increasingly recognized as a legitimate part of that cost.

4. As an immediate encouragement toward employer contribution toward the enrolment cost of hospital and medical protection, government, at every level from municipal to national, should promote the program of such protection for its own employees by assuming either a part or all of the cost of enrolment in voluntary prepayment plans.

5. As rapidly as possible, consistent with actuarial experience and sound administration, the services eligible under such voluntary nonprofit organizations should be extended to cover all nonchronic ailments on an inclusive basis.

6. After sufficient enrolment is attained, we recommend that consideration be given the practicability of providing medical care protection on an inclusive basis to subscribers in voluntary, nonprofit plans, regardless of the financial status of the subscribers, and with no salary limitation for over-all inclusive service.

7. We propose that immediate study be given the possibility of providing voluntary, nonprofit protection for those who are "medically indigent" though not on public assistance rolls, through the use of state and local funds for the purchase of such protection. As a rule of thumb to determine "medical indigency," the criterion might be the question whether one's taxable income is such as to exempt him from payment of Federal income taxes.

8. For the medical and hospital care of persons on public assistance rolls, we recommend the providing of service through state-county-municipal funds, perhaps utilizing on a cost basis the voluntary nonprofit organizations for the actual provision of the required services.

9. There is no actuarially sound basis yet established for treating the chronically ill as an insured group. We suggest, therefore, that study be given to providing care for needy persons suffering from chronic illness, on a cost basis at state level, again with the possibility of utilizing the facilities of voluntary nonprofit organizations.

10. The need for better local public health service in most areas of the United States has long been recognized, but progress in providing it has been discouragingly slow. We recommend that every state government adopt such legislation as may be needed to permit consolidation of local health jurisdiction into districts having sufficient size and resources to support at least a minimum staff and facilities for complete modern basic public health protection.

11. There are numerous areas in certain states where the private practice of medicine is economically or professionally impractical, because the areas will not sustain a sufficient number of capable physicians on a fee-for-service basis, or because hospital facilities are inadequate or lacking. Progress is being made under the Hill-Burton Hospital Survey and Construction Act toward meeting the deficit of hospital accommodations. We suggest exploring the possibility of the U. S. Public Health Service providing competent physicians to such areas when requested by state or local agencies.

12. Such a cooperative health program as is here envisaged may require a considerable increase in the number of physicians, health officers, nurses and other medical personnel. Ideally, every qualified person desiring to enter the field of medicine and public health should be able to do so. We support a program of government subsidy, where needed, to assist qualified individuals in obtaining professional training and to expand professional training facilities where it is found possible to expand existing schools or to establish new ones. We believe that any governmental subsidy that may be provided for these purposes should be granted unconditionally to approved institutions.

The American Medical Association submits that through such voluntary cooperative action, the problem of attaining an adequate national health program can and will be solved.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. William R. Brooksher, Chairman, submitted the following report, which was duly adopted:

The Medical Society of New Jersey's resolution offering proposals for a cooperative health program in which national and state governments may participate was ably presented. Your committee is advised of the action of the House of Delegates this morning in approving that portion of the report of the Reference Committee on Reports of Board of Trustees and Secretary which recommends that the special committee authorized by the House of Delegates at the 1950 Annual Session in San Francisco be empowered to formulate a statement of policy that will guide the Association and its constituent societies in implementing the Twelve Point Program. Your committee recommends that this special committee give full and sympathetic consideration to the proposals submitted in this resolution with a view toward immediate adoption of some, and that it give study to the applicability for subsequent adoption of the remaining proposals.

Resolution on Exchange Students

Dr. W. F. Costello, New Jersey, presented the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The United States of America is proclaiming the philosophy of the Brotherhood of Man and is prosecuting a policy of education in its efforts to secure world peace; and

WHEREAS, The art and science of medicine knows no national boundaries; therefore be it

Resolved, That the Medical Society of New Jersey approves the principle of exchange students in the interest of better understanding between men and approves of hospitals in this state accepting for intern training citizens of foreign countries who are recent graduates of acceptable foreign schools, and that the medical staffs of said hospitals be urged to teach not only the best in American medicine but also, by example and precept, the best in American democracy, with the hope that the exchange student will be so saturated with democracy as to be effective in sowing the seeds of democratic principles on his return home.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. William Bates, Chairman, submitted the following report, which was duly adopted:

Your committee feels that the principles involved are worthy of wider adoption and hereby recommends that this House of Delegates publicize this activity of the Medical Society of New Jersey to all component societies so that all states where laws and regulations of those bodies having charge of intern training permit may utilize this plan of education and grass roots indoctrination in the fundamentals of democracy.

Resolutions on Proposing Greater Federal Economy

Dr. William R. Brooksher, Arkansas, submitted the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Economy in government presupposes a wise expenditure of funds which have been exacted from the people by taxation; and

WHEREAS, It is desirable that a halt be put to the indiscriminate granting of federal subsidies for purposes which are amply able to pay their own way; and

WHEREAS, A beginning in such a reform should be immediately inaugurated, to commence not with others but with the advocates of such a reform; and

WHEREAS, The postgraduate courses provided from tax funds by the Federal Government are highly instructive and beneficial to the medical profession but can be financed without difficulty by those who are the recipients of such educational services, and it is the desire of the medical profession of Arkansas to pay personally such fees for the postgraduate instruction as is received in the future; now therefore be it

Resolved, By the House of Delegates of the Arkansas Medical Society that our Congressional delegation be and is hereby requested to make such efforts as may be necessary to eliminate from future budgets the expense of conducting courses of postgraduate work for the medical profession; and be it further

Resolved, That our delegates to the American Medical Association be instructed to present this resolution to the House of Delegates of the American Medical Association in annual session at Atlantic City, June 11-15, 1951.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. L. G. Christian, Chairman, reported that the reference committee approved the resolutions and recommended their adoption and this report was duly adopted.

Resolutions on Professional Standards in Hospitals to be Vested in American Medical Association

Dr. Karl S. J. Hohlen, Nebraska, submitted the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

Whereas, The American College of Surgeons has announced its decision to discontinue the program of hospital standardization it has so ably conducted for many years; and

Whereas, The American Hospital Association Board of Trustees subsequently announced that the American Hospital Association would "assume full responsibility for the hospital standardization program now conducted by the American College of Surgeons," and its House of Delegates increased association dues to finance the program; and

Whereas, Objections raised by the American Medical Association, the American Academy of General Practice and others to control of hospital medical practice by the American Hospital Association led to a series of conferences between representatives of the American Medical Association, the American Hospital Association, and the American College of Surgeons; and

Whereas, A compromise agreement has now been proposed for the creation of a joint committee composed of representatives from the American Medical Association, the American Hospital Association, the American College of Surgeons and the American College of Physicians, said committee to have complete authority over the evaluation and standardization of hospitals, including both administrative and professional aspects; and

Whereas, The evaluation and standardization of medical practice in hospitals is of such paramount importance to all branches of the medical profession that it should be under the sole and complete authority of the American Medical Association, which is the only medical organization representative of the entire profession in America and in which all segments of the profession have official democratic means for expressing their views on matters of such importance as the control of hospital medical practice; and

Whereas, The creation of an extramural committee with authority over this important aspect of modern medical practice would deny those branches of the profession not officially represented on such committee an official voice in the establishment and control of policies and procedures; now therefore be it

Resolved, That, regardless of what other organizations may undertake in connection with the standardization of nonprofessional matters in hospitals, the sole responsibility for the evaluation, standardization and control of medical practice in hospitals should be vested in the Council on Medical Education and Hospitals of the American Medical Association; and be it further

Resolved, That a copy of this resolution be furnished each Nebraska delegate to the American Medical Association with instructions that it be presented to the House of Delegates of the American Medical Association at its annual meeting in June 1951.

(The report of the Reference Committee on Medical Education and Hospitals may be found under the Report of the Board of Trustees.)

Resolutions on Combining Staff Meetings with County Medical Society Meetings

Whereas, The attendance at required hospital staff meetings has become a burdensome responsibility in communities wherein there is more than one hospital; and

Whereas, Attendance and interest in the county medical society is suffering by reason of the above; and

Whereas, The county medical society is the important unit in the solidarity of the physicians of city, county, state and nation; therefore be it

Resolved, That the Lancaster County Medical Society instruct its delegates to present this resolution to the House of Delegates of the Nebraska State Medical Association at its next session; and be it further

Resolved, That the said House of Delegates instruct the Nebraska delegates to the American Medical Association to present a resolution to the House of Delegates of the American Medical Association asking that the officers and other proper officials take cognizance of the increasing number of hospital staff meetings that require attendance of the staff in order to preserve staff membership and hospital rating, and that it be pointed out to the said officers and officials that the activities and interests of the county medical society, both scientific and organizational, must at all times be paramount to those of hospital staffs; and be it further

Resolved, That the delegates to the American Medical Association incorporate in their resolutions a request that the rules and regulations pertaining to hospital staff meetings be so modified as to permit the combining of staff meetings and clinical pathological conferences with county medical society meetings where such combinations are the desire of the membership.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. William Bates, Chairman, presented the following report, which was duly adopted:

Your committee realizes the time consuming demands made by required attendance at multiple medical meetings, as well as the requirements of attendance at hospital staff meetings by the Council on Medical Education and Hospitals of the American Medical Association, and the more stringent requirements in like respect to maintain good standing regarding staff appointments by the American College of Surgeons, as well as the high desirability of attendance at meetings of the local county medical societies. In order that the American Medical Association reopen a consideration of this problem before discussed by this House, your committee recommends that the Council on Medical Education and Hospitals study the whole problem of multiplicity of medical meetings and report its findings in this respect, perhaps after consultation with the American College of Surgeons, back to this House in December, paying particular attention to the desirability of setting up the mechanics of the implementation of the objectives of this resolution, particularly in the smaller metropolitan and rural areas.

Resolutions on General Practice Residencies

Dr. Allen T. Stewart, Texas, presented the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

Whereas, It is to the best interest of the people of this nation and the medical profession as a whole to have well trained family doctors in sufficient number to care properly for the sick; and

Whereas, The General Practice Residency as now set up by the Council on Medical Education and Hospitals of the American Medical Association and contained in the Essentials of Approved Residencies and Fellowships is woefully inadequate in surgical training; and

Whereas, The final result of such inadequacy can only produce in the course of time men wholly unprepared to meet the needs of the people whom they serve, with general dissatisfaction of the men engaging in the general practice of medicine, and finally discrediting of the entire medical profession; therefore be it

Resolved, By the House of Delegates of the Texas Medical Association that a better balanced training be given men serving General Practice Residencies with at least eight months out of the 24 devoted to surgery, four of which shall embrace operating room experience as assistant in major surgery, the remaining four months as now recommended for General Practice Residencies; and be it further

Resolved, That the delegates from Texas to the American Medical Association be and are hereby instructed to use every means at their command to have remedied the plan for General Practice Residencies as set forth above, and that they be further instructed to report at their first opportunity progress made in presenting this resolution.

REPORT OF REFFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. William Bates, Chairman, submitted the following report, which was duly adopted:

Your Reference Committee on Medical Education and Hospitals reviewed the resolutions presented by the Texas delegation, which were thoroughly considered and witnesses heard.

Your committee feels that no rigid, nationwide context should be made regarding the internship training. The present military emergency restricts all internships to one year.

Your committee recommends, and the Texas delegation agrees, that this problem and the resolutions be given to the Council on Medical Education and Hospitals for further study.

Resolution on Request for Section on Public Relations

Dr. Floyd S. Winslow, New York, presented the following resolution which was first referred to the Council on Scientific Assembly for review and then, after the report from the Council, to the Reference Committee on Sections and Section Work:

Whereas, Public relations have assumed a position of great importance in the existence of both community and physician; and

Whereas, There is much literature coming frequently to all members of the American Medical Association; and

Whereas, The assimilation of such literature regarding public relations is frequently difficult because of its volume and scope; therefore be it

Resolved, That the American Medical Association establish a Section on Public Relations as part of its Scientific Assembly in accordance with Article 9, Section 3, of the Constitution.

Report of Council on Scientific Assembly

Dr. Charles H. Phifer, Acting Chairman, presented the following report, which was duly adopted and referred to the Reference Committee on Sections and Section Work, together with the original resolution:

The Council on Scientific Assembly has carefully considered the resolution which was introduced by Dr. Floyd S. Winslow and referred to this Council.

It is the considered opinion of the members of the Council on Scientific Assembly that while good public relations should be closely associated with the practice of medicine, the subject of public relations does not fall within the meaning of Article 9, Sections 1, 2 and 3 of the Constitution in its definition and interpretation of the science and art of medicine. In view of these facts the creation of a Section on Public Relations as part of the Scientific Assembly would violate Article 9, Sections 1, 2 and 3 of the Constitution of the American Medical Association.

Your Council on Scientific Assembly therefore recommends that this resolution be not adopted.

In connection with the consideration of this resolution on public relations your Council on Scientific Assembly would like to call the attention of the members of this House of Delegates to the very excellent program on public relations arranged by the Trustees and officers of the American Medical Association which has been presented immediately prior to the opening of the clinical sessions of the Association. This should be attended by the members of the House of Delegates.

Report of Reference Committee on Sections and Section Work

Dr. Willard A. Wright, Chairman, submitted the following report, which was duly adopted:

Your committee had referred to it the request for the formation of a new Section on Public Relations; also the Report of the Council on Scientific Assembly recommending that this Section on Public Relations be not formed. Your committee concurs in the recommendation of the Council on Scientific Assembly that a new Section on Public Relations be not formed.

Your reference committee desires to recommend to the Board of Trustees that continued efforts be made to increase the interest, education and participation by physicians in public relations.

Your Reference Committee wishes to commend the Council on Scientific Assembly for the excellent programs presented at the various sessions.

Resolutions on Sales Promotion Methods of Pharmaceutical Houses

Dr. F. H. Muller, for the Illinois State Medical Society, introduced the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, The Press Relations Committee of the Chicago Medical Society has received many complaints relative to the sales promotion methods used by some of the pharmaceutical houses through the press, radio and television; and

Whereas, Their appeal is directed in many instances to the public, by-passing the medical profession and disregarding established standards; therefore be it

Resolved, That the Chicago Medical Society record its objection to these practices and direct that copies of this resolution be sent to all metropolitan press, radio and television services and that the Editor of The Journal of the American Medical Association comment on the same; and be it further

Resolved, That the delegates of the Chicago Medical Society to the Illinois State Medical Society present this matter to the Illinois State Medical Society, requesting it to take cognizance of this situation and bring the same to the attention of the American Medical Association for appropriate action looking to the correction of this situation.

(For report of Reference Committee on Miscellaneous Business, see its report on Resolution on Lay Advertising.)

Resolution on Distribution of Interns

Dr. F. H. Muller, for the Illinois State Medical Society, submitted the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

Whereas, The present method of securing interns in hospitals is obviously unfair to the small nonteaching hospital; and

Whereas, The patients in these small hospitals are entitled to the same high type of medical service rendered in the larger hospitals; therefore be it

Resolved, That the Council on Medical Education and Hospitals be requested to study this problem further in the interest of a more equitable distribution of interns, the apportionment being based on the number of beds in hospitals approved for intern training.

Report of Reference Committee on Medical Education and Hospitals

Dr. William Bates, Chairman, submitted the following report, which was duly adopted:

As any constructive answers to the Illinois State Medical Society's Resolution on Distribution of Interns and the Resolution on Distribution of Interns from the Ohio State Medical Association are dependent on the investigation being instituted by the Board of Trustees, this committee commends those societies for their constructive thinking. It recommends serious consideration by the Advisory Committee of our recommendation for speed. The present cooperation between the Council on Medical Education and Hospitals and the official governing bodies of interns in the various states as well as the present vicious financial bidding for intern services are dependent on an early solution of this new investigating committee.

Resolution on Blue Cross Benefits

Dr. J. D. Hancock, Kentucky, presented the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

Whereas, Blue Cross hospitalization insurance plans are usually limited by their corporate laws to pay benefits to hospitals only; and

Whereas, It appears desirable from both an economic and public service aspect that such plans should pay benefits in emergency cases for use of office facilities and supplies to a physician; and

Whereas, *Emergency medical service needs to be rendered in a hospital*, but a subscriber to Blue Cross must receive such treatment in a hospital in order to receive the benefits; and

Whereas, In many areas additional costs are incurred transporting the patient to the hospital when the emergency care could more properly and efficiently be rendered in a physician's office; and

Whereas, Revisions in the Blue Cross policy to provide payment to physicians for use of their facilities in treatment of emergency cases would result in a savings to the Blue Cross plan and a resultant conservation of *the funds available for benefits of their insured; now therefore be it*

Resolved, That this House of Delegates instruct its Council on Medical Service to study the matter of payment for emergency care under Blue Cross plans and report its recommendations at the next session of this House of Delegates.

Report of Reference Committee on Insurance and Medical Service

Dr. William R. Brooksher, Chairman, presented the following report, which was duly adopted:

Resolution on Blue Cross Benefits: Your committee recommends disapproval of this resolution for the reason that the resolution proposes the study of payment for emergency medical service under Blue Cross plans and your committee feels that payments for such service should be made by medical care plans.

Resolution on Hospital Standardization Program

Dr. George Earl, Minnesota, submitted the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

Whereas, The hospital standardization program carried on by the American College of Surgeons is and should be continued by physicians, rather than by lay organizations, such as the American Hospital Association; and

Whereas, The American College of Surgeons has indicated its inability to carry on this program unassisted; and

Whereas, The American Medical Association comprises and represents the American medical profession; *therefore be it*

Resolved, That the American Medical Association singly, or in combination with the American College of Surgeons, continue and maintain the hospital standardization program in its traditional form.

(For report of the Reference Committee on Medical Education and Hospitals, see its report under Report of Board of Trustees.)

(To Be Continued)

MEDICAL NEWS

ARIZONA

County X-Ray Survey.—The Maricopa County chest x-ray survey finished its nine-week drive April 21. During the drive more than 176,000 x-rays were taken, representing 75.9% of the county's eligible population, persons 15 years of age and older. The county placed sixth percentage-wise among 13 areas in the United States having similar anti-tuberculosis surveys. The state health department's chest x-ray mobile unit, which participated in the Maricopa County drive, is proceeding with the program scheduled for communities in Navajo, Apache, Mohave, and Coconino counties.

COLORADO

Annual Rocky Mountain Cancer Conference.—This fifth annual conference will be held in Denver July 11-12, sponsored by the Colorado State Medical Society and the Colorado Division of the American Cancer Society. The guest speakers are Drs. W. Edward Chamberlain, radiology, Philadelphia; Oscar T. Clagett, surgery, Rochester, Minn.; G. Edmund Haggart, orthopedics, Boston; John H. Lamb, dermatology, Oklahoma City; Walter L. Palmer, internal medicine, Chicago; John Rock, gynecology, Boston; Frank B. Queen, pathology, Portland, Ore., and Robert A. Scarborough, proctology, San Francisco.

New Clinic for Denver.—A $264,912 grant from the Commonwealth Fund of New York to the University of Colorado and the City and County of Denver will be used to improve the education of doctors for general practice and to provide better care for the indigent of Denver through the establishment of a general medical clinic at the Denver General Hospital. Organization and recruiting of the staff is now underway. The clinic will be organized so that one doctor will be in charge of each case and will be responsible for all referrals, including any appointments with specialists, or for special laboratory work. A unique aspect of the clinic will be the opportunity afforded to the staff to draw on public health and preventive medicine services. In terms of economy, the general medical clinic will reduce the reduplication of administrative work and cut down the cost of inpatient care, because the diagnostic and laboratory examinations can be done on an outpatient basis. In addition to medical staff, nursing personnel, and laboratory technicians, the clinic will also have a social worker and psychiatrist.

ILLINOIS

Society Elections.—At the annual meeting of the Illinois chapter of the American College of Chest Physicians May 23 the following officers were elected: Dr. Charles K. Petter, Waukegan, president; Drs. William J. Bryan, Rockford, vice president, and Abel Froman, Chicago, secretary-treasurer.——The following members of the Illinois Psychiatric Society were elected to office May 19: Dr. William H. Haines, Chicago, president; Dr. Jules H. Masserman, Chicago, vice president, and Dr. Josephine M. Chapin, Chicago, secretary-treasurer.

Northwestern Presents Honorary Degrees.—At the centennial year commencement exercises of Northwestern University in Evanston June 11 an honorary doctor of science degree was presented to Dr. Helen B. Taussig, professor of pediatrics, Johns Hopkins University Medical School, Baltimore, in recognition of her studies and writings as having "contributed to the understanding of congenital heart disease in children." Percy L. Julian, Ph.D., director of research for Glidden Company, Chicago, received an honorary doctor of science degree in recognition of his investigations of the products of living organisms and his work in synthesizing hormones of the gonads and adrenal cortex from soy bean steroids. Dr. Joseph C. Hinsey, dean of Cornell University Medical College, New York, received an honorary doctor of science degree in recognition of his "noteworthy contributions to medicine as a teacher, investigator in the field of neuro-anatomy, administrator, and editor and writer for medical journals." Mrs. Spencer Tracy, president of the board of directors of the John Tracy Clinic, Los Angeles, was also given an honorary doctor of science degree as a "spokeswoman for the needs of the young deaf child."

Chicago

Student Prizes.—Robert J. Maganini, third-year medical student, has been awarded the 1951 Leo F. Miller Prize of $50 at the University of Illinois College of Medicine for his presentation of an essay in the field of orthopedic surgery. The prize-winning essay was entitled "Solitary Unicameral Bone Cyst." A second place award of $15 was presented to William S. Johnson for his paper on "Traumatic Injuries of the Menisci." George A. Hart received the third place prize of $10 for his essay on "Spondylolisthesis."

Research Institutes.—Informal dedication of the University of Chicago's 11 million dollar laboratories was held May 16. The laboratories include the Institute for Nuclear Studies, the Institute of Radiobiology and Biophysics, and the Institute for the Study of Metals. Equipment includes a synchrocyclotron that will produce a beam of particles known as mesons. About 15% of the eventual working time of the beam will be spent in biological experimentation. In addition, there are a 100 million volt betatron and two other atom smashers, a Van de Graaff generator, which produces a proton beam of two million electron volts, and a 600,000-volt kevatron.

Personals.—Dr. Harry F. Dowling, professor and head of the department of preventive medicine, University of Illinois College of Medicine, Chicago, has been appointed professor and head of the department of internal medicine at the university, effective Sept. 1. He will succeed Dr. Robert W. Keeton, who will retire from active service at the end of the current academic year.——Dr. Lowell T. Coggeshall, chairman of the department of medicine of the University of Chicago, has been appointed chairman of the committee on medical sciences of the Department of Defense Research and Development Board. He replaces Dr. Francis G. Blake of Yale University, who had been chairman since April, 1948. Dr. Blake's replacement is in line with the Research and Development Board policy of rotating committee chairmanships.——Dr. Robert M. Bloch, professor of medicine at the University of Chicago clinics, has been appointed chief of the division of pulmonary diseases at Montefiore Hospital for Chronic Diseases in New York, effective Aug. 1.

KENTUCKY

Joint Meeting.—The Christian County Medical Society and the Third Councilor District of the Kentucky State Medical Association held a joint dinner meeting at the Western State Hospital, Hopkinsville, June 12. The speakers were Dr. Robert M. Coleman, Hopkinsville, "Clinical Problems and Radiation Sickness," and Dr. Roy H. Moore Jr., Louisville, "Mass Treatment of Traumatic Injuries." The meeting closed with a film entitled "Medical Aspects of the Atomic Bomb, Clinical Problems."

Rural Scholarship Fund.—A dinner meeting of the Rural Kentucky Medical Scholarship Fund was held in Louisville May 30 in honor of the June graduates of the University of Louisville School of Medicine who had received aid from the fund. All students and former graduates interning or practicing who had been granted assistance,. together with new applicants, were invited. At the business session following the dinner loans were approved for 16 students in the University of Louisville School of Medicine and one student at St. Louis University School of Medicine, all of whom had received prior loans from the fund. Ten of 12 applicants for first loans were interviewed and approval granted. Of the 49 students aided by the fund, eight graduates are in practice, and five will begin practice in July.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

MAINE

Personal.—Clarence Cook Little, Sc.D., Bar Harbor, received from Boston University the honorary degree of doctor of science at commencement exercises June 4. Dr. Little is director of the Roscoe B. Jackson Memorial Laboratory.

Annual State Medical Meeting.—The Maine Medical Association held its annual session at Poland Spring June 17-19 under the presidency of Dr. Foster C. Small, Belfast. Out-of-state speakers included:

Edward L. Howes, New York, Corticotrophin (ACTH) and Cortisone in Surgery.
Edward S. Judd Jr., Rochester, Minn., Surgery of the Thyroid Gland.
H. Bristol Nelson, Boston, Obstetrics for the General Practitioner.

At a dinner Dr. John W. Cline, San Francisco, President of the American Medical Association, was the speaker. Gov. Frederick G. Payne delivered the address at the banquet. The woman's auxiliary met in conjunction with the association.

MINNESOTA

Drs. Hench and Kendall Receive First Criss Award.—Because of their work in the development and use of cortisone, Dr. Philip S. Hench and Edward C. Kendall, Ph.D., of the Mayo Clinic, Rochester, were named joint winners of the first $10,000 Dr. C. C. Criss Award of Mutual of Omaha. Presentation of the award was made at the meeting of the American Rheumatism Association at Atlantic City on June 9. Dr. Elmer L. Henderson, then President of the American Medical Association, introduced Dr. Neil L. Criss, medical director and treasurer of Mutual of Omaha, who presented each of the winners $5,000 and a gold medal. The Criss award was created in 1949 in honor of the founder and chairman of the board of the health and accident insurance company. It is awarded to the person or persons residing in the United States, Canada, Alaska, or Hawaii, who, in the opinion of the board of judges, make the greatest contribution to public health and/or safety each year.

NEBRASKA

Fluoridation of Water.—Beatrice is the first city in Nebraska to officially approve fluoridation of its municipal water supply for the partial control of dental caries. Superior has also officially approved the fluoridation of its public water supply and is taking steps to get the program in operation as soon as possible.

NEW YORK

University Appointment.—Dr. Frederick H. Hesser, who has been assistant professor of neurology at the State University of Iowa College of Medicine in Iowa City since 1948, has been appointed associate professor of neurology at Albany Medical College. He has also been appointed attending neurologist at Albany Hospital and will be in charge of the brain wave recording laboratory there.

Dr. Collier Awarded Kaiser Medal.—At the annual meeting of the Rochester Academy of Medicine Dr. G. Kirby Collier, Rochester, was presented the Albert David Kaiser Medal, the highest award of the academy, "in recognition of his services to humanity." Dr. Collier has been a physician in Rochester since 1919. He is chairman of the section on convulsive disorders of the American Psychiatric Association and of the committee on nervous and mental diseases of the Medical Society of the State of New York.

New York City

City Suspends Immunization for Summer.—The New York City Department of Health has suspended immunizing infants and children over 6 mo. of age against diphtheria and whooping cough at the department's 76 child health stations from June 15 to Oct. 1 this year. This action is being taken because of a possible relation between recent immunization and paralysis in poliomyelitis.

Dr. Gorham Heads Public Health Institute.—The Public Health Research Institute of the City of New York, Inc., has appointed Dr. L. Whittington Gorham of Albany as director to succeed the late Dr. Walter W. Palmer. Dr. Gorham has been a member of the Public Health Council of New York State for 11 years and chairman since 1947. He served as professor of medicine at Albany Medical College from 1937 to 1948 and physician-in-chief of the Albany Hospital. Since 1948 he has been professor of medicine and coordinator of the division of oncology in the medical school and senior physician in the hospital. The Public Health Research Institute was organized in 1941 as a nonprofit membership corporation organized for the purpose of undertaking research and investigation into problems of public health.

Personals.—Dr. Frank R. Ferlaino, medical director in New York for General Motors Corporation and assistant clinical professor of industrial medicine at New York Postgraduate Medical School, has been made a trustee of the Society of Medical Jurisprudence, succeeding Dr. L. Howard Moss, Richmond Hill, resigned.——Dr. Samuel Rosen, associate otologist at the Mt. Sinai Hospital, has accepted an invitation from the Ministry of Health in Israel to visit that country for a tour of lectures and guest operations. Dr. Rosen will work at Tel Aviv, Haifa, and Jerusalem.——At the recent 75th anniversary meeting of the American Dermatological Association Dr. Howard Fox was made an honorary member of the association. His father, Dr. George H. Fox, was one of the founders of the association.

OHIO

University Alcoholism Clinic.—The Alcoholism Clinic, seventh subdivision of the outpatient activities of the University of Cincinnati department of psychiatry, will accept its first patients on Aug. 1. The new clinic is to be supported financially by a group of industrialists organized as a Committee of the Public Health Federation.

Cincinnati Society of Internal Medicine.—This society was organized on May 18. The executive committee elected includes Dr. Joseph N. Ganim, president; Dr. W. Orville Ramey, vice president; Dr. George X. Schwemlein, secretary-treasurer; Dr. Marion A. Blankenhorn, Dr. Harold K. Moss, and Dr. Robert M. Woolford. The society will hold monthly meetings.

SOUTH CAROLINA

New University Medical Center.—The first contracts have been let for the construction of the new Medical College of the State of South Carolina 400-bed teaching hospital. In addition, new laboratory, clinic, and library expansion of the existing plant have been made possible by an appropriation from the state legislature and a grant from the National Cancer Institute. Land has been acquired for the erection of a new dormitory building for students and some of the staff. Arrangements are virtually complete for the erection of a new tuberculosis hospital in connection with this medical center. Funds available to carry out the construction program amount to over 12 million dollars, not including dormitory construction. The South Carolina Medical Association on May 15 appropriated $10,000 for the use of the Medical College of the State of South Carolina in connection with the proposed increase in its enrollment.

TEXAS

Study of Burns.—The T. J. Brown and C. A. Lupton Foundation has given a grant of $18,000 to the University of Texas Medical Branch, Galveston, to support a fellowship in the division of plastic surgery under the direction of Dr. Truman G. Blocker Jr. The grant, which will be used to assist in studies on methods of treating severe burns, includes provision for technical assistants as well as for special equipment.

WASHINGTON

Addition to Children's Orthopedic Hospital.—Ground was broken May 14 for the Children's Hospital in Seattle, which is to cost 4½ to 5 million dollars and be an addition to the Children's Orthopedic Hospital. The 200-bed institution is being built on the 25-acre Laurelhurst tract comparatively close to the University of Washington School of Medicine. Though the name of the hospital appears to limit it to orthopedic cases, it has grown into a general children's hospital with 36 specialized clinics. The hospital, for which an additional million dollars must be raised, is scheduled for completion early in 1953.

GENERAL

Childrens Aid Ends in Greece.—The *New York Times* reported June 7 that after 3½ years of mission work in Greece the United Nations International Children's Emergency Fund has announced that its work in that country would come to an end on June 30. The total value of food and supplies shipped by the fund during that time amounted to eight million dollars, and clothing and health projects cost $756,000.

Books Reach Japanese Hospital.—The first medical books to reach the Cooperative Hospital of Nakano-ku, Tokyo, in more than a decade have been received by the institution's founder, Dr. Toyohiko Kagawa. The books were sent by the Cooperative League Congress, Chicago, through the CARE-UNESCO Book Fund Program. The shipment included five up-to-date works on bacteriology, anatomy, anesthesia, and medical principles and practice valued at $51.50. Medicine is one of 21 book categories that are acceptable by the Book Fund, CARE, 20 Broad St., New York 5, or any CARE office in the United States.

American Orthopaedic Association.—This association held its annual session June 20-23 at the Greenbrier, White Sulphur Springs, W. Va., under the presidency of Dr. James S. Speed, Memphis. Dr. Fremont Chandler, Chicago, was installed as the new president at this meeting. Those presenting papers by invitation were:

Robert Robinson, Rochester, N. Y., Inorganic Component of Bone as Demonstrated by the Electron Microscope.
Robert D. Ray, Seattle, A Comparative Study of Bone Grafting Materials.
Charles H. Herndon, Cleveland, Experimental Studies in Transplantation of Whole Joints.
Ian Macnab, Toronto, Canada, Recurrent Dislocation of the Patella.
George T. Pack, New York, Sarcomas of the Soft Somatic Tissues.
Harold R. Bohlman, Baltimore, Replacement Reconstruction of the Hip.
Arthur W. Ham, Toronto, Canada, Histophysiological Problems Peculiar to Calcified Tissues.
William T. Mustard, Toronto, Iliopsoas Transfer for Hip Abductor Weakness.

Cerebral Palsy Scholarships.—Alpha Chi Omega, national women's fraternity, and the National Society for Crippled Children and Adults, have jointly announced the names of six recipients of specialized scholarships in cerebral palsy. Those receiving scholarships include Mrs. Ruth E. Cook, teacher in charge of the Nursery School for Cerebral Palsied Children, Phoenix, Ariz.; Frederick Darley, Ph.D., assistant professor of speech, State University of Iowa, Iowa City; Murray M. Halfond, speech pathologist, Duke University School of Medicine, Durham, N. C.; Marilyn J. Hill, nursery school teacher at the Meeting Street School in Providence, R. I.; Betty Jane McWilliams, speech therapist at the Cerebral Palsy School maintained by the Wheeling Society for Crippled Children, Wheeling, W. Va., and Mrs. Alice S. Noel, education director of the Cerebral Palsy Pre-School of Vine Hill, Nashville, Tenn. The cerebral palsy scholarship program is made possible by a financial grant established in 1948 by Alpha Chi Omega, which has taken the welfare of the cerebral palsied as its major altruistic project. In the past three years 54 scholarships have been awarded.

Society Elections.—At the annual meeting of the Society for Investigative Dermatology in Atlantic City, N. J., June 7-8, Dr. Samuel M. Peck, New York, was elected president, and Dr. John R. Haserick, Cleveland, vice president. Dr. Marion B. Sulzberger, New York, was elected a member of the board of directors of the society for a period of five years, 1951-1956.——At the annual meeting of the American Psychoanalytic Association in Cincinnati May 3-6 the following took office for 1951-53: Dr. Robert P. Knight, Stockbridge, Mass., president; Dr. Ives Hendrick, Boston, president-elect; Dr. LeRoy M. A. Maeder, Philadelphia, secretary, and Dr. William G. Barrett, San Francisco, treasurer. The Brill Memorial Medal was presented to the retiring president, Dr. M. Ralph Kaufman, New York.——At the annual meeting of the American Heart Association in Atlantic City June 6-10 Dr. Louis N. Katz, director of cardiovascular research, Michael Reese Hospital, Chicago, became president succeeding Dr. Howard B. Sprague of Brookline, Mass., who, by custom, will become chairman of the scientific council. Dr. Irving S. Wright, professor of clinical medicine, Cornell University, New York, was chosen president-elect. The number of vice presidents was increased from one to five, and the following were elected to fill these posts: Mrs. Alben Barkley, Washington, D. C.; Bruce Barton, New York; Dr. T. Duckett Jones, New York; Dr. Robert L. King, Seattle, and Frederick K. Trask Jr., New York. Grant Keehn, New York, was renamed treasurer of the association.

International Anesthesia Research Society.—The Congress of Anaesthetists, a joint session of the International Research Society and the International College of Anaesthetists, will be held at the British Medical Association House, Tavistock Square, London, Sept. 3-8. Among those appearing on the program are the following:

Nadia de Bouchet, Paris, Electro-Cardiographic Changes During Cardiac Surgery.
I. C. W. English, London, Role of Selective Bronchial Intubation in Thoracic Surgery.
P. Mazzoni, Rome, Anesthesia for Cardio-Vascular Surgery.
Salomon N. Albert, Lebanon, Anesthesia for Pulmonary Partial Resections.
H. C. Voorhoeve, Delft, Holland, Post-Operative Analgesia.
S. R. Johnson, Stockholm, Sweden, Circulatory Studies During Anesthesia by Means of Heart Catheterization.
D. S. Wilson, Londonderry, N. Ireland, Anesthesia for the Aged.
Harold R. Griffith, Montreal, Canada, Safety Factors in Spinal Anesthesia.
E. Lopes Soares, Lisbon, Portugal, General Anesthesia with Pentothal-Novocain.
Owen Elder, Buenos Aires, Argentina, Modern Anesthesia in Argentina.

The Hewitt Lecture will be given the afternoon of Sept. 4 by Dr. Robert M. Tovell, director of anesthesiology, Hartford Hospital, Hartford, Conn., on "New Horizons in Anesthesiology."

An International Congress of Anesthesiology will take place in Paris Sept. 20-22 in the Nursing School of the Hospice de la Salpetreiere, (The Journal, June 2, p. 486).

Report of World Health Assembly.—With the participation of 70 countries and 20 international organizations, the World Health Assembly opened in Geneva on May 7 and met for 16 days under the chairmanship of Dr. Leonard Scheele, Surgeon-General, U. S. Public Health Service. Most important achievement of the assembly legislative body of the World Health Organization was the adoption of international sanitary regulations, which, without need for ratification by member states, will automatically come into force on Oct. 1, 1952 and replace all existing sanitary conventions for health protection in international trade and travel. The assembly's decisions on program questions mean that for the first time there will be, next year, a world-wide coordinated pattern of international health work financed by WHO, the United Nations International Children's Emergency Fund, and the United Nations technical assistance program. WHO's 1952 program will represent the first phase in carrying out a four-year plan that stipulates short and long-term objectives for building strong national health services throughout the world. The assembly set an effective working budget of almost $7,700,000, a 25% increase over this year's figure. Another feature of the assembly was a series of informal technical discussions on the education and training of medical and public health personnel. The discussion underlined the pressing need for reform of the curriculum of medical schools and related institutions and for reorientation of teaching toward preventive medicine and social medicine. Three countries, Japan, Spain, and Germany, were admitted to WHO, increasing membership to 78 countries, although 10 are now inactive. Six countries, Cuba, Belgium, Lebanon, Liberia, Ceylon, and Greece, were elected to the executive board replacing Yugoslavia, Union of South Africa, the Netherlands, Brazil, Poland, and India. The World Health Assembly honored the Belgian scientist, Dr. Rene Sand, who was awarded the Leon Bernard Foundation Prize for his achievements in social medicine.

LATIN AMERICA

Pan-American Congress Against Tuberculosis.—This congress will be held July 14-22 in Guayaquil, Ecuador. There will be official delegates of several Pan-American countries. Official speakers listed on the preliminary program include: Drs. Ramón Vargas Machuca and Victor M. Tejada, both of Perú, on "Antibiotics in Treatment of Tuberculosis," and Drs. Jorge Campos R., Víctor Narváez, Juan J. Arredondo and Ricardo Subiría of Perú on "Circulation in Pulmonary Tuberculosis," Drs. Ramón

E. Marín Pittaluga and Abelardo Rodríguez of Uruguay on the general topic tuberculosis and Miguel A. Fierro Vignoli, Mario Volonterio, and Luis E. Magnone on "National Findings in Massive Examination of Chest in Uruguay." Drs. Jorge A. Higgins, Francisco Marchán, Armando Pareja Coronel, José Durand N. and Euro Torres L., Marcos Martínez M., all of Ecuador, will be speakers and co-speakers on the clinical surgical and laboratory aspects of tuberculosis and paraaminosalicylic acid and tuberculin in treatment of tuberculosis.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers. Sept. 5-7 (Part I only). Applications must be filed at least thirty days prior to an examination. Ex. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

INTERNATIONAL COLLEGE OF SURGEONS

Examinations for Certified Fellowship in the United States Chapter in General and Orthopedic Surgery, Chicago, Aug. 3-4. Sec., Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago 10.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application was Jan. 20. *Oral.* Memphis, Oct. 14-17. *Written.* July 18, 1952, Various locations. Final date for filing applications is Jan. 18, 1952. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Internal Medicine: *Written.* Various centers, Oct. 15. Final date for filing applications was May 1. *Oral.* The schedule of oral examinations for 1951 has been arranged on a regional basis as follows: New York, date to be announced, covering Maine, Massachusetts, New Hampshire, New York and Vermont. San Francisco, date to be announced, covering Arizona, California, Colorado, Idaho, Montana, New Mexico, Oregon, Utah and Washington.

Only candidates who have not taken an oral examination can be admitted under the schedule arranged thus far.

Dates of closing dates for the filing of applications for examinations in New York and San Francisco to be announced.

Oral examinations in the subspecialties will be held at the same time and place and on the same distribution.

Exec. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3.

American Board of Neurological Surgery: *Oral.* Chicago, Oct. 25-26. *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 examination is Jan. 1, 1952. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and Gynecology: *Written.* Feb. 1, 1952. Final date for filing applications is Nov. 1. *Oral.* Chicago, June 7-13, 1952. Final date for filing application is Feb. 1, 1952. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

American Board of Ophthalmology: *Written.* Twenty-five centers, Feb. 4-5, 1952. *Oral.* Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: Final date for filing applications for the 1952 Part II examinations is Aug. 15, 1951. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Oral.* Chicago, Oct. 8-12. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

American Board of Pediatrics: *Oral.* Buffalo, Oct. 26-28. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Preventive Medicine: *Written.* San Francisco, October 28. *Oral.* San Francisco, October 29. Sec., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore 5.

American Board of Proctology: Philadelphia, Nov. 17-18. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology: *Oral.* Washington, D. C., Sept. 17-22. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

Board of Throacic Surgery: *Written.* Various parts of the country. Sept. 14, 1951. Final date for filing applications is July 15. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

American Board of Urology: Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

MEETINGS

Natinoal Medical Association, Philadelphia, Aug. 20-24. Dr. John T. Givens, 1108 Church Street, Norfolk 10, Va., General Secretary.

Postgraduate Assembly in Endocrinology, Olympic Hotel, Seattle, Wash., July 2-7. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City, Okla., Secretary.

Post Graduate Medical Assembly of South Texas, Shamrock Hotel, Houston, Texas, July 23-25. Mrs. W. H. Dahme, 229 Medical Arts Bldg., Houston, Executive Secretary.

Reno Surgical Society Conference, Riverside Hotel, Reno, Nev., Aug. 23-25. Dr. Olin C. Moulton, 130 N. Virginia St., Reno, Nev., Chairman.

Rocky Mountain Radiological Society, Denver, Aug. 9-11. Dr. Maurice D. Frazer, 1037 Stuart Building, Lincoln, Nebr., Secretary.

West Virginia State Medical Association, The Greenbrier, White Sulphur Springs, July 19-21. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Executive Secretary.

INTERNATIONAL

Association Internationale de Psychotechnique, Gothenburg, Sweden, July 24-28. Dr. Franziska Baumgarten-Tramer, Thunstrasse 35, Berne, Switzerland.

European Congress on Rheumatism, Barcelona, Spain, Sept. 24-27. Dr. Gunnar Edströn, Lund, Sweden, Secretary.

General Practitioners Study Club International, Rome, Italy, Sept. 12-15. Dr. John O'Connell, 10300 Lackland Road, St. Louis 14, Mo., U. S. A., President.

International Anesthesia Research Society, London, England, Sept. 3-7. Mr. R. W. Cope, University College Hospital, London W.C.1, England.

International Association of Allergists, Zurich, Switzerland, Sept. 23-29. Prof. A. S. Grumbach, Hygiene Institut der Universitaet Zurich, Gloriastr. 32, Zurich, Switzerland.

International Congress of Anesthesiology, Nursing School of the Salpiettre, 47 Boul de l'Hospital, Paris, France, Sept. 20-22. 12 rue de Seine, Paris 6^e^, France, Secretariat.

International Congress of Clinical Pathology, London, England, July 16-20. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W.9, England, Secretary.

International Congress on Industrial Medicine, Instituto Superior Técnico, Lisbon, Portugal, Sept. 9-15. Dr. Luis Guerreiro, Instituto Nacional do Trabalho e Previdência, Praça do Comercio, Lisbon, Secretary General.

International Congress on Mental Health, Mexico City, Mexico, Dec. 11-19. Mrs. Grace E. O'Neill, Division of World Affairs, National Association on Mental Health, 1790 Broadway, New York 19, N. Y.

International Congerss of Physical Medicine, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Honorable Secretary.

International Congress of Psychology, Stockholm, Sweden, July 16-21. Secretariat: Psychological Institute, Observotoriegatan 8, Stockholm, Sweden.

International Gerontological Congress, Hotel Jefferson, St. Louis, Mo., U. S. A., Sept. 9-14. Dr. John E. Kirk, 5600 Arsenal Street, St. Louis 9, Mo., Chairman, Program Committee.

International Hospital Congress, Brussels, Belgium, July 15-21. Capt. J. E. Stone, 10 Old Jewry, London E.C., England, Secretary.

International Poliomyelitis Congress, Copenhagen, Denmark, Sept. 3-7. Prof. Dr. Niels Bohr, Statens Seruminstitut, 80 Amager Blvd., Copenhagen S., Denmark, President.

International Society of Surgery, Paris, France, Sept. 24-29. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, Secretary General.

International Society for the Welfare of Cripples, Fifth World Congress, Stockholm, Sweden, Sept. 9-14. Mr. Donald V. Wilson, 54 E. 64th St., New York 21, N. Y., U. S. A., Executive Director.

Pan American Congress on Tuberculosis, Guayaquil and Quito, Ecuador, S. A., July 14-22. Dr. Marco Martinez M., Casilla de Correos No. 116, Guayaquil, Ecuador, Secretary General.

Pan Pacific Surgical Association Congress, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

Students' International Clinical Congress, Leyden, Utrecht, Groningen and Amsterdam, Holland, July 10-28. N. A. M. Bergstein, Oude Gracht 143 bis, Utrecht, Holland, Secretary General.

World Confederation for Physicial Therapy, Copenhagen, Denmark, Sept. 7-8.

World Medical Association, Stockholm, Sweden, Sept. 15-21. Dr. Louis H. Bauer, 2 E. 103d St., New York 29, N. Y., U. S. A., Secretary-General.

DEATHS

Hazen, Henry Honeyman ⊕ Washington, D. C.; born in Oldwick, N. J., July 21, 1879; Johns Hopkins University School of Medicine, Baltimore, 1906; professor of dermatology emeritus at Howard University College of Medicine, where he had been professor from 1911 to 1944 and director of postgraduate courses in venereal disease control from 1937 to 1942; professor of dermatology at Georgetown University School of Medicine from 1913 to 1934; a member of the Committee on Evaluation of Serodiagnostic Tests for Syphilis, since 1926 consulting dermatologist, and since 1943 chairman of the Advisory Committee on Public Education for the Prevention of Venereal Diseases, U. S. Public Health Service; consultant in syphilology and from 1942 to 1946 attending physician to the District of Columbia Health Department; honorary life member of the American Social Hygiene Association; president of the Social Hygiene Society of the District of Columbia from 1937 to 1945; member of the American Dermatological Association; specialist certified by the American Board of Dermatology and Syphilology; chairman of the National Prophylactic Committee; visiting dermatologist to the Columbia Hospital for Women and Lying-In Asylum and Freedmen's Hospital; in 1944 awarded an honorary doctor of science degree by Howard University and in 1925 received an honorary master of arts degree from Georgetown University; author of "Diseases of the Skin," 1915, third edition in 1927, "Skin Cancer," 1916, "Syphilis," 1919, second edition 1928, "Cutaneous X-ray and Radium Therapy," 1931, and "Syphilis in the Negro," 1942; died May 1, aged 71.

Hamilton, Paul Myron ⊕ San Marino, Calif.; born in Brightwood, Ind., July 19, 1894; Johns Hopkins University School of Medicine, Baltimore, 1922; clinical professor of pediatrics at the University of Southern California School of Medicine; specialist certified by the American Board of Pediatrics; certified by the National Board of Medical Examiners; member of the American Academy of Pediatrics, the Southwestern Pediatric Society, of which he was a past president, the medical advisory board, Los Angeles branch, National Foundation for Infantile Paralysis, the Los Angeles Academy of Medicine, and the Medical Symposium Society of Los Angeles; on the staff of the Los Angeles County General Hospital, where for 12 years he served as chief of the communicable disease unit; for many years senior staff member and in 1950 president of the Huntington Memorial Hospital in Pasadena, where in perpetuation of his good works the Paul Hamilton Memorial Fund has been established to assist the care of needy children in the pediatric ward; consultant at St. Luke Hospital in Pasadena; died March 9, aged 56, of coronary occlusion.

Herbst, Robert Harry ⊕ Highland Park, Ill.; born in Chicago Dec. 25, 1877; Rush Medical College, Chicago, 1900; specialist certified by the American Board of Urology; professor of urology, emeritus, at the University of Illinois College of Medicine; formerly clinical professor of surgery (genito-urinary) at his alma mater; member and past president of the American Urological Association, Chicago Urological Association, and the Rush Medical Alumni Association; fellow of the American College of Surgeons; member of the Institute of Medicine of Chicago and the Chicago Society of Medical History; attending urologist at Presbyterian Hospital, Chicago, and the Lake Forest Hospital; attending genitourinary surgeon, Highland Park Hospital, died May 15, aged 73, of cerebral hemorrhage.

Kordenat, Ralph August ⊕ St. Louis; born in Reedsburg, Wis., May 1, 1894; University of Illinois College of Medicine, Chicago, 1922; member of the founders group of the American Board of Surgery; formerly associate professor of surgery at his alma mater; fellow of the American College of Surgeons; at one time practiced in Chicago, where he was on the staff of Henrotin Hospital; Veterans Administration area chief of surgery for eight states since 1948; served during World War I; during World War II vice medical chairman of Cook County for the Procurement and Assignment Service; died in the Veterans Administration Hospital, Jefferson Barracks, May 9, aged 57, of coronary occlusion following cervical laminectomy.

Gresser, Edward Bellamy ⊕ New York; born in New York April 29, 1898; University and Bellevue Hospital Medical College, New York, 1922; associate professor of ophthalmology at his alma mater, now known as New York University College of Medicine; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; fellow of the American College of Surgeons; consultant in tropical ophthalmology to the Secretary of War from 1943 to 1949; affiliated with Beth Israel, Lincoln, and Bellevue hospitals; died in Trudeau, N. Y., April 28, aged 53, of bronchopneumonia due to monilia.

Peacock, Alexander Hamilton ⊕ Seattle; born in Philadelphia June 29, 1880; University of Pennsylvania Department of Medicine, Philadelphia, 1903; an Associate Fellow of the American Medical Association and in 1930-1931 member of its House of Delegates; specialist certified by the American Board of Urology; member of the North Pacific Surgical Association and American Urological Association; fellow of the American College of Surgeons; urologist, Kings County Hospital; on the staff of Swedish Hospital, Seattle General Hospital, Children's Orthopedic Hospital, Maynard Hospital, Columbus Hospital, and Providence Hospital, where he died April 13, aged 70, of carcinoma of the face.

Gilbert, George Burton ⊕ Colorado Springs, Colo.; Johns Hopkins University School of Medicine, Baltimore, 1907; specialist certified by the American Board of Internal Medicine; an Associate Fellow of the American Medical Association; member of the American College of Chest Physicians, American Trudeau Society, and American Clinical and Climatological Association; fellow of the American College of Physicians; associate research director of the Colorado Foundation for Research in Tuberculosis; consulting physician to Memorial Hospital; member of the honorary staff, Glockner-Penrose Hospital; associate physician, St. Francis Hospital; died April 6, aged 69, of coronary occlusion.

Nicholson, William Rufus ⊕ Philadelphia; born in Boston Feb. 26, 1868; University of Pennsylvania Department of Medicine, Philadelphia, 1893; emeritus professor of gynecology and obstetrics at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; life member of the American Gynecological Society; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the College of Physicians of Philadelphia, serving as secretary for many years; served on the staffs of the Methodist and Presbyterian hospitals and as consultant for Germantown Hospital; died Feb. 18, aged 82, of arteriosclerotic heart disease.

Myers, Thomas Chalmers ⊕ Los Angeles; University of Southern California School of Medicine, Los Angeles, 1900; an Associate Fellow of the American Medical Association; past president of the Los Angeles County Medical Association; fellow of the American College of Surgeons; active in World War I and was the recipient of the Italian Croce al Merito di Guerra; lieutenant colonel in the medical reserve corps of the U. S. Army; first staff president of St. Vincent's Hospital, serving in that capacity in 1920, and was active on the staff more than 20 years; died in St. Vincent's Hospital April 9, aged 75, of cerebral arteriosclerosis.

Davis, David Bennett ⊕ Los Angeles; University of Minnesota Medical School, Minneapolis, 1934; instructor in pediatrics at the College of Medical Evangelists, Loma Linda and Los Angeles; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; affiliated with Cedars of Lebanon Hospital, where he died April 12, aged 43, of rheumatic heart disease.

⊕ Indicates Fellow of the American Medical Association.

Flint, Oliver Josephus ⊕ Princeton, Ill.; Northwestern University Medical School, Chicago, 1898; veteran of the Spanish-American War; served during World War I; member of the high school board of Princeton Township for many years; for many years president of the Bureau County Tuberculosis Sanitary Board; affiliated with Perry Memorial Hospital, where he died March 24, aged 80, of carcinoma of the urinary bladder.

Gault, Reece C., Jackson, Ga.; Meharry Medical College, Nashville, Tenn., 1914; died March 20, aged 60, of cerebral hemorrhage, hypertension, and arteriosclerosis.

Gelb, Maurice ⊕ Montgomery, Ala.; Cornell University Medical College, New York, 1920; served during World War I; affiliated with the Veterans Administration; died in the Veterans Administration Hospital March 24, aged 56, of myocardial infarction.

Gibbons, George Lee, Mitchell, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1903; past president of the Lawrence County Historical Society; served during World War I; for two terms coroner of Lawrence County and later county health officer; for many years health officer of Mitchell; died April 13, aged 72.

Gilbert, Mabelle Spaulding Watson, East Cleveland, Ohio; Cleveland University of Medicine and Surgery, 1897; on the staffs of Huron Road and Woman's hospitals in Cleveland; died May 7, aged 77, of coronary disease.

Gilligan, Alexander, Baldwin, N. Y.; Long Island College Hospital, Brooklyn, 1899; specialist certified by the American Board of Otolaryngology; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served on the staff of Lutheran Hospital; died in Brunswick General Hospital, Amityville, April 7, aged 82.

Gooding, Harvey Burt, Germantown, Ohio; Ohio Medical University, Columbus, 1901; president of the Montgomery County Crippled Children Society; served on the staff of the Middletown (Ohio) Hospital; died recently, aged 73, of hemorrhage, esophageal varicosities and arteriosclerotic heart disease.

Govar, Claude J., North Little Rock, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1923; served during World War I; died April 30, aged 55.

Griffin, Sarah Myrtle Freeberger, Manson, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1897; member of the American Medical Association; died Feb. 28, aged 79, of myocarditis.

Hanlein, Victor ⊕ Schenectady, N. Y.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1921; served during World War I; affiliated with St. Clare's Hospital and Ellis Hospital, where he died May 13, aged 55, of coronary thrombosis.

Harned, Sophia P., Brooklyn; Hahnemann Medical College and Hospital, Chicago, 1884; served on the staff of Prospect Heights Hospital, where she died April 14, aged 90.

Harrison, John Francis ⊕ Stamford, Conn.; Jefferson Medical College of Philadelphia, 1903; member of the American Association of Industrial Physicians and Surgeons; affiliated with Stamford Hospital and St. Joseph's Hospital, where he died April 13, aged 76, of osteoporosis of the vertebrae and arteriosclerosis.

Hartman, Frank G., Lancaster, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the American Medical Association; past president of the Lancaster County Medical Society; served as president of the city board of health and as county coroner; affiliated with Lancaster General Hospital; died April 30, aged 81.

Heine, Clinton Daniel ⊕ Hooper, Neb.; Rush Medical College, Chicago, 1915; died in Omaha April 28, aged 63, of acute leukemia and bronchopneumonia.

Helper, Morton ⊕ Evansville, Ind.; University of Michigan Medical School, Ann Arbor, 1936; treasurer of Vanderburgh County Medical Society; formerly on the faculty of his alma mater; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; served during World War II and was awarded the Bronze Star; affiliated with St. Mary's and Protestant Deaconess hospitals; died May 10 in Columbus, Ohio, aged 39, of Hodgkin's disease.

Henderson, Richard Alvin, Brooklyn; Long Island College Hospital, Brooklyn, 1897; member of the American Medical Association; on the staff of the Brooklyn Eye and Ear Hospital; died April 12, aged 76.

Hill, Henry Garland ⊕ Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1912; died May 4, aged 65, of coronary thrombosis.

Hise, Fred Rhodes, Canton, Ohio; McGill University Faculty of Medicine, Montreal, Canada, 1930; member of the American Medical Association; served during World War II; died recently, aged 48, of coronary thrombosis.

Horne, Joseph Alvin, Detroit; Central College of Physicians and Surgeons, Indianapolis, 1897; died April 24, aged 84, of heart disease.

Hoster, Herman Albert ⊕ Columbus, Ohio; Johns Hopkins University School of Medicine, Baltimore, 1938; professor of medicine and coordinator of oncology at Ohio State University College of Medicine; president of the Hodgkin's Disease Research Foundation; research director of Columbus Cancer Clinic; affiliated with Ohio State University Hospital, where he died May 14, aged 39, of Hodgkin's disease.

Houston, Bush ⊕ Nevada, Iowa; State University of Iowa College of Medicine, Iowa City, 1908; fellow of the American College of Surgeons; served during World War I; second vice-president of the Iowa State Medical Society; city health officer and for six years member of the school board; surgeon for the North Western and Rock Island railroads; died in Memorial Hospital, International Falls, Minn., April 22, aged 65, of cerebral hemorrhage.

Hover, Frank William ⊕ Sealy, Texas; Long Island College Hospital, Brooklyn, 1905; died recently, aged 71, of coronary thrombosis.

Katz, Israel K. ⊕ Cleveland; University of Louisville (Ky.) School of Medicine, 1928; member of the American Trudeau Society; on the staff of Mount Sinai Hospital; served on the staff of Sunny Acres, Cuyahoga County Tuberculosis Hospital; died April 11, aged 48, of arteriosclerotic heart disease.

Kaufmann, Eugene, College Point, N. Y.; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1906; member of the American Medical Association; served on the staffs of the Horace Harding Hospital in Elmhurst and Parsons Hospital in Flushing; died April 18, aged 70, of heart disease.

Kenworthey, William Bartle ⊕ Lieutenant Colonel, U. S. Army, retired, Lake Worth, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; served during World War I; entered the medical corps of the U. S. Army as a captain in 1920; promoted to major in 1929; retired with the rank of lieutenant colonel in September, 1937, for disability in line of duty; died March 19, aged 77, of arteriosclerotic heart disease and prostatic hypertrophy.

Kimery, Philip Erasmus, Smithshire, Ill.; Barnes Medical College, St. Louis, 1910; member of the American Medical Association; died in Graham Hospital, Canton, April 20, aged 68, of injuries received in a truck accident.

King, Bernard Albert, Anderson, Ind.; Medical College of Indiana, Indianapolis, 1905; member of the American Medical Association; served during World War I; died in Jackson Memorial Hospital, Miami, Fla., April 25, aged 68, of cerebrovascular accident.

Koons, Franklin Walter, Halstead, Kan.; Kansas City (Mo.) Medical College, 1898; member of the American Medical Association; past president of the Harvey County Medical Society; died April 18, aged 79.

Kremers, Alexander, Waupun, Wis.; Northwestern University Medical School, Chicago, 1905; affiliated with Central State Hospital; died April 4, aged 69.

Kreuder, Henry ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1898; died April 27, aged 78.

Kriebs, Frank Joseph, Elkport, Iowa; Rush Medical College, Chicago, 1881; member of the American Medical Association; died in Mercy Hospital, Dubuque, April 18, aged 91, of cerebral embolism.

Laffoon, Clint A., Park City, Utah; the Hahnemann Medical College and Hospital, Chicago, 1907; member of the American Medical Association and the American Association of Railroad Surgeons; formerly member of the Kansas State Board of Health; physician for the Silver King Coalition Mine and the Union Pacific Railroad; died in the Park City Miners' Hospital May 10, aged 70, of cerebral hemorrhage.

Laufman, Isidor, Cleveland; Long Island College Hospital, Brooklyn, 1908; died April 14, aged 67, of coronary thrombosis.

Lief, Frederick Paul ⊕ Kew Gardens, N. Y.; Long Island College of Medicine, Brooklyn, 1934; affiliated with Queens General Hospital in Jamaica and Bellevue Hospital in New York; died in Forest Hills April 17, aged 42, of coronary sclerosis.

McAlister, Hector Clive, Fort Wayne, Ind.; University of Toronto Faculty of Medicine, Toronto, Canada, 1916; medical director of the Lincoln National Life Insurance Company; killed in an airplane crash April 28, aged 55.

McCrea, Eppie Sabra ⊕ Eddyville, Iowa; Barnes Medical College, St. Louis, 1904; member of the public library board and the Iowa State Medical Women's Society; died April 25, aged 83, of hemiplegia.

McCullough, Walter James, Sayville, N. Y.; Jefferson Medical College of Philadelphia, 1918; died in Dr. King's Hospital, Bay Shore, April 25, aged 66, of cancer of the larynx.

McGarvey, Samuel Curtis, Bridgeville, Pa.; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1901; member of the American Medical Association; member of the school board of Bridgeville for 18 years, serving part of the time as president; since 1902 on the board of the Bridgeville Trust Company, of which he had been president for many years; for eight years a member of the borough council; died in Presbyterian Hospital, Pittsburgh, April 15, aged 81, of renal insufficiency.

McKelvey, Samuel Robert, Denver; Western Reserve University Medical Department, Cleveland, 1884; member of the American Medical Association; formerly associated with the U. S. Public Health Service; at one time secretary and executive officer of the Colorado State Board of Health; died in the General Rose Memorial Hospital April 10, aged 89, of bronchopneumonia and hemorrhage following extraction of a tooth.

MacPherson, Charles Herbert, Morrisonville, Ill.; Chicago College of Medicine and Surgery, 1913; member of the American Medical Association; past president of the Christian County Tuberculosis Association; served during World War I; on the staff of St. Vincent Hospital in Taylorville; died April 8, aged 65, of coronary occlusion.

Marble, Robert Eugene ⊕ Omaha; Hering Medical College, Chicago, 1906; John A. Creighton Medical College, Omaha, 1914; affiliated with Lutheran Hospital; died in Methodist Hospital April 18, aged 68, of carcinoma.

Martin, Edward, Milton, Mass.; Tufts College Medical School, Boston, 1911; member of the American Medical Association; affiliated with the Boston City Hospital and Massachusetts Women's Hospital in Boston, and the Homberg Infirmary, Massachusetts Institute of Technology, Cambridge; died April 9, aged 66, of coronary thrombosis.

Martin, Elmer Ellsworth, Milwaukie, Ore.; Albany (N. Y.) Medical College, 1892; died in the Veterans Administration Hospital in Vancouver, Wash., April 14, aged 86.

Mayerberg, I. Wallace, Wilmington, Del.; Jefferson Medical College of Philadelphia, 1907; formerly with the medical department of the E. I. du Pont de Nemours Company; died May 2, aged 66, of gastrointestinal hemorrhage.

Mitchell, Edwin Joseph, Scottsbluff, Neb.; John A. Creighton Medical College, Omaha, 1913; also a graduate in pharmacy; died April 30, aged 70, of uremia and pneumonia.

Morgan, Richard Theodore, Marion, Ohio; Ohio Medical University, Columbus, 1897; member of the American Medical Association; member and past president of the Marion Academy of Medicine; died in Marion City Hospital April 9, aged 78, of cerebral hemorrhage.

Mueller, George ⊕ Chicago; Rush Medical College, Chicago, 1894; an Associate Fellow of the American Medical Association; formerly on the faculty of Loyola University School of Medicine; fellow of the American College of Surgeons; emeritus chief-of-staff, St. Mary of Nazareth Hospital; died May 7, aged 83, of hypostatic bronchopneumonia.

Nordenbrock, Gregory John ⊕ Dallas, Texas; Washington University School of Medicine, St. Louis, 1934; at one time health commissioner for Shelby County, Ohio; died April 20, aged 45, of coronary heart disease.

Onnen, John G. ⊕ Baltimore; College of Physicians and Surgeons, Baltimore, 1908; also a graduate in pharmacy; on the staffs of Maryland General, St. Joseph, Lutheran, and Franklin Square hospitals; chief medical examiner of the Selective Service Board during World War II; died April 18, aged 67, of arteriosclerosis and aortic stenosis.

Palmer, Paris A., Maynardville, Tenn.; University of Tennessee Medical Department, Nashville, 1893; died March 20, aged 83, of heart disease.

Pickett, Elizabeth Lovelace ⊕ Aldan, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; for many years member of the school board in Aldan and the borough council; cited by the Red Cross for her services performed during World War I; medical superintendent and owner of Pickett Sanatorium; died in Delaware County Hospital, Drexel Hill, April 14, aged 82, of intestinal hemorrhage.

Prendergast, John James ⊕ San Diego, Calif.; Loyola University School of Medicine, Chicago, 1932; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Pacific Coast Oto-Ophthalmological Society; affiliated with Mercy Hospital, where he died April 8, aged 45, of cerebral metastatic carcinoma and adenocarcinoma of the esophagus.

Rosenow, Erwin R., New York; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1909; member of the American Medical Association; on the staffs of Sydenham Hospital and the Jewish Memorial Hospital, where he died April 12, aged 67, of acute myocardial infarction.

Scheele, Matthias Henry ⊕ University City, Mo.; St. Louis University School of Medicine, 1909; on the staff of Barnard Free Skin and Cancer Hospital in St. Louis; served as secretary and treasurer of the board of regents of Loras College in Dubuque, Iowa; died in St. Anthony's Hospital, St. Louis, April 2, aged 66, of cerebral hemorrhage.

Shelton, Hanson Penn, Georgetown, Ohio; Jefferson Medical College of Philadelphia, 1897; died in Good Samaritan Hospital, Cincinnati, April 24, aged 77, of acute coronary thrombosis.

Smith, Egbert Livingston ⊕ Waterbury, Conn.; Yale University School of Medicine, New Haven, 1896 served during World War I; an Associate Fellow of the American Medical Association; for many years affiliated with Waterbury Hospital; died April 20, aged 79, of coronary sclerosis.

Webb, Roy Abner, Pampa, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1916; member of the American Medical Association; past president of the Lions Club; died in Highland General Hospital April 19, aged 59, of cerebral hemorrhage.

Wisehart, William H., Colfax, Ind.; Central College *of Physi*cians and Surgeons, Indianapolis, 1897; member of *the American* Medical Association; died in Witham Hospital, *Lebanon*, recently, aged 87, of senility.

GOVERNMENT SERVICES

ARMY

Another Scrub Typhus Expedition to Malaya.—The Army Medical Service has again sent a team of scientists to the Federated Malay States and British North Borneo to make studies aimed at the eradication of scrub typhus from that area and other parts of the world. Scrub typhus proved almost as dangerous to American troops in the Pacific as the enemy during World War II. Knowledge acquired as the result of work done by three similar teams in Malaya during the postwar years has produced specific curatives. In 1948 such a team, after conducting experiments under controlled conditions, reported that some recently discovered antibiotics proved highly effective in the treatment of scrub typhus. Chloramphenicol (chloromycetin®), aureomycin, and terramycin, the drugs of choice in the order named, provide the only known specific treatment for the infection.

The mission of the present group is to attempt to develop an effective vaccine to prevent the initial infection and to experiment with impregnated clothing, chemical sprays, and other means of eliminating the mites that carry the disease. This group will undertake its studies at the invitation of the British and Malay governments. Headquarters will be established in the capital city of Kuala Lumpur, and the work will be carried on in collaboration with the British Scrub Typhus Commission, staff members of the Institute for Medical Research, and various Malayan medical groups.

The six officers making up the Army Medical Service team, all from the Graduate School Army Medical Center, Washington, D. C., are Maj. Charles L. Wisseman Jr., Maj. Herbert Ley Jr., and 1st Lt. Philip Y. Patterson, all officers in the Medical Corps; Capt. Warren G. Hoag, Veterinary Corps, and Maj. Robert Traub and 1st Lt. Fred Diercks, both of the Medical Service Corps. An additional member, Dr. David H. Johnson of the Smithsonian Institute, will leave the unit at British North Borneo to conduct studies of various jungle animals that serve as hosts for the infectious mites. The selection of this location was made necessary because of the hostility of Chinese Communist guerrillas who have made field work in the countryside and jungles of Malaya extremely hazardous. Dr. Johnson will be joined later by Major Traub, field director of the research team, and Major Wisseman after the Malayan program has been organized.

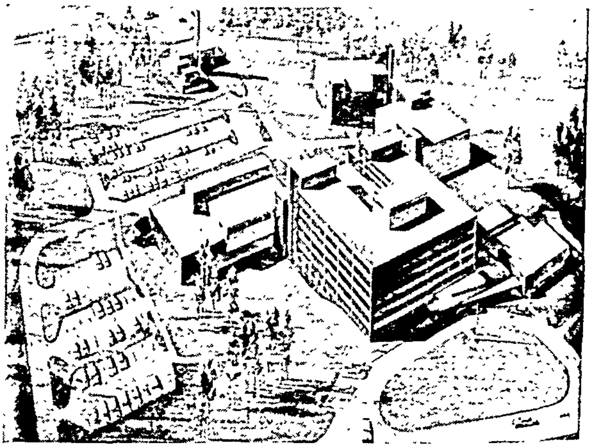
International Congress of Military Medicine. — Maj. Gen. George E. Armstrong, newly appointed Surgeon General of the Army, departed June 15 as an official delegate to the Thirteenth International Congress of Military Medicine and Pharmacy held in Paris June 17-23 under the sponsorship of the president of France. General Armstrong was joined in Paris by the other official Army delegate, Maj. Gen. Edgar Erskine Hume, chief surgeon of the Far East Command in Tokyo, who delivered and address on medical activities in Korea. Following these meetings, General Hume participated in the Fourteenth International Committee Meeting of the Congress at Vichy, France, June 24-25.

Medical Aspects of Nuclear Energy.—The Army's course in the medical aspects of nuclear energy will begin July 9 and continue throughout the week at the Army Medical Service Graduate School, Washington, D. C. Among the instructors will be Brig. Gen. James Cooney, radiation safety adviser during the recent atomic tests at Eniwetok; Brig. Gen. Elbert DeCoursey, director of the Armed Forces Institute of Pathology; Dr. Richard Gerstell, executive director of Civil Defense in Pennsylvania; Col. William Stone; Capt. Robert Hinners, USN, and Lt. Col. Joseph Cody, AF. Col. Roy Maxwell, chief of the biophysics department at the Army Medical Service Graduate School, is director of the course.

PUBLIC HEALTH SERVICE

New Building for Communicable Disease Center.—Plans have been completed for a new national headquarters building and research laboratory in Atlanta for the Communicable Disease Center of the Public Health Service. The new center, a group of six buildings to cost an estimated 12½ million dollars, will furnish facilities for a number of projects related to wartime protection of the civilian population as well as to peacetime public health. Projects closely connected with national defense include biological warfare defense studies and training, toxicological research on chemical warfare agents, and field training of certain military personnel in sanitation.

The center will be built next to the campus of Emory University, which donated the site, according to Dr. R. A. Vonderlehr, medical director. Additional Congressional authorization will be needed before construction can begin. Plans call for erection of: (1) the main building, consisting of a five-floor laboratory section, surrounded by an eight-story office section, (2) the infectious disease laboratory building of five floors, (3) the virus laboratory, also five floors, (4) the audio-visual production building, four floors, (5) the cafeteria, seating 135 persons, and auditorium, seating 300, and (6) the boiler house. All these buildings will be windowless, except for office space.



Proposed 12½ million dollar national headquarters building and research laboratory to be built at the Communicable Disease Center of the U. S. Public Health Center at Atlanta.

Defense-related activities of CDC include insect and rodent control operations around military and industrial establishments; biological laboratory research; training of personnel in the armed forces and civilian health establishments in sanitary methods; training for laboratory directors and technicians, and training of public health personnel from foreign countries.

The Communicable Disease Center, with a predecessor organization, has been located in Atlanta since 1942. Its normal peacetime duties are to assist the states in the prevention and control of communicable diseases, such as rabies, murine typhus fever, malaria, diarrheal disease, plague, and insect-borne encephalitis. Activities extend to every state and overseas territory. It has 500 employes locally, with more than 1,000 others throughout the United States. Headquarters temporarily are at 50 Seventh St., N. E., with principal laboratories at Chamblee, Ga., 14 miles from Atlanta.

When the new center is completed the virus laboratory will be moved to Atlanta from Montgomery, Ala. Earlier plans to bring the Technical Development Services of the Communicable Disease Center to Atlanta from Savannah have been cancelled because of the expense involved. That branch of CDC will remain in Savannah.

FOREIGN LETTERS

LONDON

Male and Female Death Rates.—Some interesting facts reviewed in an annotation in *Lancet* April 7, 1951, are based on a paper presented before the Royal Statistical Society on March 28, 1951, by Mr. W. J. Martin, D.Sc., of the Medical Research Council's statistical research unit. Martin reported that since death registration began, more than a hundred years ago, the ratio of male to female deaths has been consistently above unity in different age groups of the population and in different parts of the country. Furthermore, the female death rate is declining more quickly than the male, and the gap widens with increasing speed.

Although control of infection has produced a fall of about 50% in the death rate since 1870, the male death rate, which in 1841-1845 was 9.6% greater than the female death rate, became 27.6% higher than the latter in 1931-1935.

The actuarial expectation rose between 1840 and 1931 from 40.36 years to 58.74 in males and 42.04 to 62.88 years in females. Although much of the improvement was due to the eradication of childhood diseases, the male-female disparity was particularly remarkable at the age of 70—men had added only six weeks to their expected life span, while women gained some 16 months. Martin pointed out that, although men might claim to have borne the brunt of the occupational hazards of the industrial revolution, the present tendency for employment of women in industry has done nothing to stay the ever-increasing disparity in the death rates. It is true, however, that the adventurous spirit of the male makes him more liable to fatalities, even in childhood. Better home conditions may have lengthened the women's life span more so than their husbands', but industrial hazards for the latter have also decreased.

In the discussion of this paper, it was brought out that the excessive male death rate was a constant feature of the vital statistics of other parts of the world. Apparently, few animal studies have been made. Prof. A. Bradford Hill, president of the Statistical Society, recalled a study showing that the stillbirth rate was higher among male than among female calves. However, he said, further research on vital statistics of such domestic animals was complicated by the differential mortality effect of the economic end in view, that is, whether the animal was intended for meat or for milk. Comparative biology may provide an answer to the question of whether life for the male is short because it is hard or because of a deep-seated biologic inferiority.

Slimming by Television.—A leading article in the *British Medical Journal* of March 24, 1951, discusses a British Broadcasting Corporation television demonstration of the effects of a slimming diet on women volunteers. It is reported that more than 44,000 viewers have applied for the television diet sheet on slimming, which the British Broadcasting Corporation has promised to send its applicants. So far this diet sheet has not been made available. Although the corporation doubtless obtained the best medical advice for the experiment, the medical profession is concerned about whether the correction of a disorder of the body's metabolism is something that can safely be prescribed without medical supervision.

In a letter in the same issue of the *British Medical Journal*, the secretary of the British Dietetic Association points out that it is a principle of her profession "that no dietary advice should be given without specific instructions from the patient's doctor" and that "no printed diet sheet should be handed out without an interview during which the dietitian satisfies herself that the patient has understood the principle of the regime, and that it is within his or her means." This is one of the sensible regulations under which these highly qualified medical auxiliaries do their work.

Obesity if not a disease is certainly a departure from normal body health, and the treatment of such a condition by restriction of the diet to 1,000 calories a day in ignorance of the social and economic position of the 44,000 starvationists, and in particular in ignorance of any physical disorder that these obese sufferers may have, is a situation that the secretary of the British Dietetic Association is justified in describing as "potentially dangerous."

Dr. Stephen Taylor, a physician and medical journalist, is conducting a one-man campaign against fatness in the *News Chronicle*, a London daily paper. He writes: "There is one essential preliminary—a visit to your doctor"; one reason advanced for doing this is that the diet is low in vitamins A and D; hence vitamin supplements may be advisable. The doctor is thus being told in advance that a certain course of treatment has been prescribed and then is left with the invidious task of saying whether his patient should adopt a regimen that has been prescribed by somebody else. Furthermore, the Ministry of Health will have to consider whether the recommended vitamin supplements are to be regarded as medicines to be issued free of charge under the National Health Service or whether they should be regarded as a form of concentrated food suitable for those enjoying a certain diet. Although the *British Medical Journal* does not challenge the soundness of the advice of either Dr. Taylor or the British Broadcasting Corporation, it is suggested that the family doctors of Britain might not unreasonably complain at being asked to underwrite somebody else's dietetic policy.

Obesity is on the borderline between health and disease, and success of the British Broadcasting Corporation enterprise may encourage a further experiment which crosses the borderline.

DENMARK

New Headquarters of the Danish Medical Association.—Further data concerning the new headquarters of the Danish Medical Association, Domus Medica (*J. A. M. A.* 139:247 [Jan. 22] 1949), have now been published by Dr. Carl Mailand of Copenhagen. The original Domus Medica was destroyed in 1944 by the Germans, who believed that the doctors of Denmark must be warned and punished because of their underground activities. After the war, there was little prospect of rebuilding on the old site because of shortages of material and prohibitive costs. Early in 1948, when the situation seemed hopeless, a magnificent building became available. It was the Plessen Palace, which had been built in 1901 by Baron Josef v. Plessen, a man of great culture and wealth, at the cost of one million Danish kroner, an impressive figure at that time. The purchase sum in 1948 was one-and-a-half million Danish kroner, including the furniture and fittings.

There was, however, much to be done to convert this palace into a building fulfilling the requirements of a modern corporate body. To provide a lecture hall, two large rooms were made into one; even this arrangement provided seating accommodation for only 130 persons. It should, however, be possible to build a much larger room on the premises or elsewhere. The old Domus Medica was financed to some extent by rental of several of its rooms to outsiders on festive occasions. This source of revenue was never quite satisfactory, as the visitors could not help interfering with the daily routine of the owners. In the new Domus Medica, such hospitality on a commercial basis will be reduced to a minimum, although accommodations will be provided for corporate medical bodies wishing to entertain. About a dozen students, whose parents are doctors, are given residential accommodation in the building, which also houses the medical society and other medical associations. Certain rooms are named for doctors who have contributed 10,000 kroner each. The national medical associations of other countries have contributed generously to the equipment of the building. Its walls

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The items in these letters are contributed by regular correspondents in the various foreign countries.

and library are being refurnished, and the thousands of books destroyed in the library of the old Domus Medica are gradually being replaced.

Death of Dr. Otto Lassen.—Dr. Otto Lassen, who was born on March 17, 1881, and died on April 30, 1951, was a remarkable example of how much can be done without high academic rank. Early in his career he was put in charge of a tuberculosis station or dispensary in Aarhus. Here he was also in general practice. He soon became so engrossed in the many aspects of the tuberculosis campaign that this disease became and remained his chief interest. He was, in a certain sense, the father of the tuberculosis station system in Denmark, and his own station came to be the model for many others elsewhere in Denmark. It also became a teaching center, where many of his colleagues got their first training in tuberculosis work. He taught that the ideal tuberculosis station must have at its disposal a certain number of hospital beds to make it a complete unit. One of his many articles on tuberculosis, submitted to a medical journal for publication, was of such outstanding merit that he was urged to develop it as a doctorate thesis; he was 60 years old when he graduated as a doctor of medicine on this thesis. From his early days, before the stethoscope had been supplanted by radiological examination, until his death, he used to drive home certain elemental facts whose very simplicity tends to make them ignored. For example, he stressed the fundamental importance of the finding of tubercle bacilli whose persistent absence should be a check on the unwary diagnosis of active tuberculosis. He was in favor of letting women go to term when pregnancy was complicated by tuberculosis, being convinced that mother and child could come safely through the ordeal when well cared for. His impression of the merits of BCG vaccination was such that he gradually extended the indications for this measure, which he at first confined to persons born into a tuberculous environment, nurses, and medical students. Later he advocated such vaccination for both children and adults if they were Mantoux-negative. *Ugeskrift for Laeger* published at the time of his 70th birthday a series of articles on tuberculosis, many of them written by his old pupils. What touched him greatly on this occasion was the request by his hospital committee that he should continue to hold his hospital appointments despite his having reached the age limit. Death occurred, presumably as the result of coronary thrombosis, only a few weeks after he had celebrated his 70th birthday.

MEXICO

Contributions of the Instituto Nacional de Cardiología.—Productive investigations in several fields have been conducted recently at the Instituto Nacional de Cardiología.

Pharmacology.—A digitalis-like substance, thevetoidin, has been isolated from a Mexican species of Thevetia (Thevetia gaumeri). Thevetoidin is a mixture of crystalline substances containing two types of polysaccharides, a small amount of a quaternary ammonium base and a pure glycoside, which is in the process of being identified. Thevetoidin has a rapid action, similar to that of strophanthin.

Physiology.—A new method has been developed for the study of coronary flow in the isolated heart which permits more accurate analysis of the factors that determine coronary output.

Electrocardiography.—Institute workers for the first time have recorded the electrical phenomena within the mass of the septal wall, not merely septal surface phenomena. This has been effected by the use of simultaneously recovering electrodes placed at various depths within the septum. This method has revealed a septal activation different in many respects from previous concepts.

Hemodynamics.—In December, 1948, for the first time, the institute hemodynamics team introduced a catheter through the patent ductus to the aorta from the pulmonary artery. Forty such catheterizations have been performed successfully.

CORRESPONDENCE

DEATH FOLLOWING CURARE ADMINISTRATION

To the Editor:—In view of the recent report by Foregger, "Fatalities Following Curare" (*J. A. M. A.* **142**:1344 [April 29] 1950), I felt it would be timely and valuable to report a case of prolonged apnea and death following anesthesia supplemented with curare and syncurine® (decamethylene-1,10-bistrimethylammonium dibromide).

On Feb. 13, 1950, a photographer, 53, underwent a gastric resection for duodenal ulcer. Other than the main complaint of obstruction and previous bleeding, there was nothing in this patient's history pertinent to this problem. There was no history suggestive of myasthenia gravis. Examination of the heart and lungs and chest x-ray disclosed no abnormalities. Premedication consisted of 1 mg. of dihydromorphinone hydrochloride and 0.40 mg. of atropine, given one hour before anesthesia was begun.

The operation proceeded with somewhat greater than average difficulty, taking three hours and ten minutes. During this time, the blood pressure was well sustained except for a short interval when the duodenal stump was being manipulated, when the blood pressure fell to 100/64. The anesthetic agent was nitrous oxide-oxygen-ether (not endotracheal). The patient received a total of 4 cc. (3 mg. per cubic centimeter) of *d*-tubocurarine and 5 mg. of syncurine.® No *d*-tubocurarine was given during the last hour and a half of the operation; the final dose of syncurine® was 1 mg., given for the closure of the peritoneum and fascia. The patient at all times was well oxygenated and had no respiratory difficulty. As the closure was being completed, it was noted that the patient's respirations were becoming more and more shallow and finally ceased. During the following seven hours, the patient was intubated and was artificially ventilated. In an early effort to stimulate the carotid body mechanism, mild cyanosis was allowed to prevail. In subsequent hours, the following drugs were administered: nikethamide (coramine®), caffeine, phenylephrine hydrochloride, and picrotoxin. Procaine and the antihistaminics were not used. Admixture of room air and ether vapor had no visible effect.

Throughout the operation and the postoperative hours of apnea, the patient received a total of 1,000 cc. of blood and 1,000 cc. of 5% dextrose in isotonic sodium chloride solution. At no time did there seem to be respiratory obstruction. The patient could always be ventilated easily. Indeed, it was surprising at times to see how pink the patient's color remained, even though ventilation was not performed manually, sometimes for minutes at a time. About four hours after the period of apnea had begun, the patient's blood pressure began to fall and his pulse to accelerate and his pupils became dilated and unresponsive to light. The administration of phenylephrine hydrochloride corrected the blood pressure and pulse abnormalities; however, the pupillary dilatation persisted. It was felt at this time that, even if recovery should occur, irreversible cerebral damage had taken place.

The patient's pharynx and tracheobronchial tree were aspirated as indicated, although at no time was there an unusual amount of mucus or moisture. Five hours after the period of apnea had begun, the patient was placed in a respirator, with the endotracheal tube in place and a catheter delivering oxygen to the patient through the endotracheal tube. About two hours later, the patient made efforts to reject the endotracheal tube; as it was removed the patient died. A Levine tube was in place throughout this entire period.

This case suggests the existence of a medullary side effect of *d*-tubocurarine and/or syncurine® which cannot as yet be anticipated and for which no effective therapy is available.

Harold Zimmerman, M.D.,
6 S. E. Second St., Evansville 9, Ind.

ERRORS IN BOOK REVIEW

To the Editor:—I would like to point out some serious errors made in the review of my book "Physicians' and Nurses' Concise Medical Encyclopedia" in THE JOURNAL of Nov. 4, 1950. 1. Your reviewer condemned the book because he found a misspelling of "Gaffky" (a typographical error) and assumed that my spelling was poor. However, on page 98, under a leading article, "Gaffky" is spelled correctly. 2. Your reviewer quoted the first sentence of my article on "pulmonary embolism" as evidence that I did not know the etiology of the disease. The etiology, however, is given in the second sentence of the article.

WILLIAM H. KUPPER, M.D., Beverly Hills, Calif.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The following special report submitted by the Council to the House of Delegates and approved by that body at the annual meeting, June, 1951, is being printed in full because of the numerous requests received by the Council for information on this subject. DONALD G. ANDERSON, M.D., *Secretary.*

POLICY OF THE AMERICAN MEDICAL ASSOCIATION REGARDING THE PRODUCTION OF PHYSICIANS

Discussions of the supply of physicians in the United States in recent years have sometimes implied that the American Medical Association, through its Council on Medical Education and Hospitals, seeks to limit the supply of physicians in this country by limiting the number of medical schools it approves, by curtailing enrolments in schools it approves, or by otherwise preventing expansion of the nation's facilities for the training of physicians. It is important that there be a clear understanding of the policies of the American Medical Association in this area.

The American Medical Association has no desire to limit the production of properly trained physicians to serve the American people. The policy of the Association is to assist and encourage any responsible group or institution endeavoring to create new facilities or expand existing facilities for the training of physicians.

The number of medical schools approved is determined entirely by the ability of schools to meet acceptable educational standards. All medical schools in operation in the United States at present are fully approved by the American Medical Association.

The Association does not attempt to regulate the size of the national student body in medicine. The number of students admitted to individual schools is determined by the faculties, administrative officers and governing boards of each school, in accordance with the school's educational philosophy and its own judgment of its educational resources. In order to preserve high educational standards, the American Medical Association may advise a school to reduce its enrolment only when there has been an enrolment increase considerably in excess of increases in facilities.

The number of medical students in approved schools has been steadily increasing. In 1910 there were 12,530 students in approved schools; today there are more than 26,000. In the last 10 years the number of medical students has increased by almost 5,000. This is the equivalent of creating at least 15 new medical schools of average size. The American Medical Association has lent every aid and encouragement to this sound expansion. In many states the medical societies have provided effective leadership in the establishment of new medical schools and the expansion of existing schools.

Still further increases in the production of physicians are in prospect. The present freshman class numbers more than 7,100 students, the largest on record. It is 23% larger than the freshman class entering medical schools in 1940. During this period the general population increase in this country was 14%. In fact, physicians have increased in numbers more rapidly than has the population at large, for more than 20 years.

It is probable that the freshman medical class will number 7,500 or more within a year or two and that by 1960 the production of physicians will be at least 30% greater than in 1950, a rate of expansion that promises to exceed that of any other major profession, and will greatly exceed the general population increase.

The American Medical Association has also facilitated the entrance into practice in this country of physicians educated abroad. After due study, it has recommended to state licensing boards that the graduates of 48 foreign medical schools be accorded the same opportunities for licensure as graduates of approved medical schools in the United States. This liberal policy in itself should make it clear that the Association is not attempting for selfish reasons to limit the number of physicians practicing in the United States.

The American Medical Association is duty bound to protest exaggerated estimates of the need for additional physicians that can only be met by debasing the quality of medical education. It would be derelict in its responsibility to the American public if it failed to make clear that a deterioration in the quality of medical care is an inevitable consequence of lowered standards of medical education.

In the past half-century the American Medical Association's efforts to improve medical education have been a major factor in the greatly improved health of the American people. For the future, the Association pledges its every effort to maintain high standards and to support expanding programs of medical education to the end that the American people may continue to enjoy the benefits of medical care unsurpassed in quality and quantity anywhere on earth.

ESTABLISHMENT OF A QUOTA BASIS FOR THE APPOINTMENT OF INTERNS

At its meeting June 8-9, 1951, the Council on Medical Education and Hospitals approved the following statement of policy regarding the approval of hospitals for intern training.

DONALD G. ANDERSON, M.D., *Secretary.*

Since 1914, the Council on Medical Education and Hospitals of the American Medical Association has approved hospitals for the training of interns without specifying the number of interns that could be accepted under the program as approved. Until recent years, this policy created no problem since the number of internships offered and the number of applicants were approximately equal.

During the past 10 years however, the number of internships offered in approved hospitals has steadily increased to the point where it is estimated that there are now at least 3,000 more internship appointments available than there are applicants to fill them. This disparity has produced a number of undesirable effects. Hospitals, large and small with few exceptions, have been unable to assure themselves of a definite number of interns from year to year and have thus been handicapped in developing stable educational programs. Applicants not infrequently have been subjected to undue pressure in making decisions with respect to hospital appointments. Some hospitals in competing for interns have stressed factors other than those of an educational nature; still others have offered an excessive number of appointments, which when filled have resulted in overstaffing with a consequent deterioration of the quality of training provided.

To ameliorate this situation, the Council hereafter, when approving hospitals for intern training, will specify the number of internships for which a hospital is approved. The first list of hospitals approved on this basis will appear in the 1951 Internship and Residency Number of THE JOURNAL, scheduled for publication Sept. 29, 1951. As a basis for computing the quota for hospitals approved prior to April 15, 1950, the following formula will be used:

1. Hospitals approved for intern training only: In these hospitals, the number of internships to be offered for the period July 1, 1952-June 30, 1953, will be limited to 80% of the num-

ber offered in 1950 as listed in the 1950 Internship and Residency Number,[1] or to the total number offered in 1940, whichever is the larger.[2]

2. Hospitals approved for intern and residency training: In these hospitals, the number of internships to be offered for the period July 1, 1952-June 30, 1953, will be limited to 70% of the number offered in 1950 as listed in the 1950 Internship and Residency Number or to the total number offered in 1940, whichever is the larger.[2]

A similar quota based on comparable bed capacities and annual admission rates will be allocated to hospitals approved since the publication of the 1950 Internship and Residency Number. In no instance will the number of appointments in a hospital offering a rotating type of internship be reduced to less than four.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Building Restrictions: Right of Chiropractor to Maintain Office in Home.—The plaintiffs filed a suit for an injunction against the defendant chiropractor to restrain him from conducting or engaging in any business or profession in his private home. From a judgment of the trial court granting the requested injunction, the defendant appealed to the Court of Appeals of Maryland.

In 1942 the defendant acquired some real estate on Terrace Street in the Northern Heights Addition to the city of Hagerstown, Md., and constructed thereon a house that cost approximately $40,000. The deed conveying this property contained a building restriction providing, among other things, that "the said premises shall be occupied and used for residence purposes only and not otherwise." The plaintiff's bill alleged that the defendant plans to engage in the business of practicing the profession of chiropractic in the basement of this building and that he had informed one of the plaintiffs that he intends to occupy the building as a residence and also conduct his office and practice his profession as a chiropractor in said building. In his answer the defendant denied he had expressed himself as intending to conduct his office and professional practice exclusively in his residence but averred that he proposed only an incidental use of the said residence for professional office purposes, such use being supplemental, beyond usual office hours, to his regular office which is maintained in another location. The defendant admitted a desire to save office rent but refused to commit himself to any plans for the near or distant future. He did testify, however, that he intends to perform, at his residence, his duties as secretary of the Board of Chiropractic Examiners. The trial court refused to recognize any distinction between practice of a profession wholly at or from one's residence and "incidental" practice to a limited extent in special circumstances, but construed the covenant that the premises "shall be occupied and used for residence purposes only and not otherwise" as prohibiting conducting or engaging in any business or profession on the premises. The trial court therefore granted an injunction in the broadest terms, in the words of the covenant plus this implied prohibition, without any definition or limitation of "use for residence purposes only" or "engaging in any business or profession."

The narrower definition of "residence purposes only," which is reflected in the trial court's decree, was well expressed in a case in a Pennsylvania lower court decision: "Use as a private dwelling house means use by way of living, eating, sleeping and enjoying the various intellectual and social diversions incident to private family life. The practice of a profession, however, is, in part at least, for the purpose of gain. It is similar in that respect to the carrying on of a business or trade. It is no answer to say that doctors, lawyers and dentists frequently conduct their offices in their homes. To the extent to which they do this (at least habitually, regularly and continually), they are using part of their dwelling houses for other than dwelling house purposes." This definition, said the Court of Appeals, which comprises little more than "eat, drink and be merry," is too narrow. School children and undergraduate and graduate students are not the only persons who do "home work" in a house used "for residence purposes only." Even children may be actuated by a hope of future gain as well as an abstract love of learning. Most people at home occasionally think and read, frequently talk, and not infrequently "talk shop." We cannot say that when one is reading Aristotle or Shakespeare or Dickens or "Gone with the Wind," or a physician is talking politics or a politician is discussing medicine, he is within his rights, but when he is reading law or medicine or Dale Carnegie or a physician is talking medicine or a politician talking politics, he is violating a restrictive covenant. All the work of a particular gainful calling may be home work, incidental to the use of premises "for residence purposes only," e. g., Trolloppe's self-imposed allotments of daily work on his novels. In this respect we see no difference between Ogden Nash's published verses (if written at home) and verses written by members of a literary club for their mutual enjoyment or by an individual for Christmas cards for his friends. If, however, a novelist or other author works with a staff of secretaries, proof-readers or other assistants, such work would not be consistent with use of the premises for residence purposes only. Such activities might constitute use for both residence and business purposes, or for business with incidental residence use like the use of chambers in one of the Inns of Court by a barrister who resides at his chambers.

The lower court expressed the opinion that the weight of authority supports the conclusion that property restricted exclusively for residence purposes cannot be used as contemplated by the defendant. Does any use of the dwelling house for the purpose of conducting a real estate and insurance business therein, as a matter of law, destroy its character as a private dwelling house? The suggestion has been made in judicial opinions that some kinds of personal business, such as that of a physician or a lawyer, may be carried on in one's dwelling house without inconvenience to the neighboring property holders and without changing the general private character of the use of the building. Doubtless this may become a matter of degree, so that we refrain from holding that the complaint does not state a cause of action, but it does not follow that if a physician sees his patients or a lawyer meets his clients at his house in a room which he calls his office, he thereby destroys the character of his home as a private dwelling house in the usual meaning given to such words.

As there is at least a doubt that the practice of medicine is prohibited, we must hold that it is not prohibited. If the practice of medicine is not prohibited, it does not follow that any and all practice is permitted. Before and since 1910 some physicians so constructed or altered their houses that architecturally their offices were offices and were distinct from, though connected with, their residences. Such buildings would not be permitted by the covenants now before us. It is undisputed that defendant's house is architecturally one of the best residential types. Many physicians now maintain offices, very different from most physicians' offices in 1910, with laboratories, various instruments and other facilities, associate physicians, secretaries, nurses, technicians or some such facilities or assistants or both. Such offices would not be permitted by these covenants. As usual, the line can only be drawn case by case. Defendant's testimony indicates, not very clearly, that for what he calls incidental use of his residence the only equipment he would locate in the house would be "an adjusting table in the basement, the same as I had out at my home for my family, [and] any of the low voltage currents which are portable, the same as you would use for a house call." There is an outside entrance to the basement, and the basement, if not so used or put to some special use, e. g., as a billiard room or a children's play room, might not be used at all or might be put only to the miscellaneous uses of an unfinished cellar. We do not think such incidental use of the basement would impair the use of the house "for residence purposes only", concluded the Court of Appeals. If defendant should abandon his present office and remove it to his residence, there is not sufficient evidence as to how the present office is conducted, to enable us to determine whether or not such an office at the residence would violate the covenants. Our decision will be without prejudice to further proceedings in this case or a new case, if and when such a change is made or threatened and plaintiffs are in a position to show the material facts. Defendant should not be permitted to *maintain* a professional or business sign on his residence. A sign is a business use of property, separable from residential use and also from incidental use in practice of a calling, and is therefore prohibited by these covenants. Defendant proposes to keep in the basement five filing cabinets and other files relating to his duties as secretary of the Board of Chiropractic Examiners and to perform his duties there. We see nothing in the covenants to prevent a physician or a lawyer or the Secretary of Medical Examiners, Bar Examiners, or Chiropractic Examiners from doing his "paper work" at home, including attention to correspondence or preparation or marking of examination papers. Defendant, however, says that at certain times "there are many, many candidates coming and getting applications, some by writing and some by personal appearance." Maintenance of such a public office to receive so much of the public as may have occasion to come in, is just as clearly a violation of the covenants as maintenance of a marriage license bureau would be. Accordingly the decree in favor of the plaintiff was reversed and the trial court was ordered to enter a decree in accordance with the opinion of the Court of Appeals.—*Osborne v. Talbot, 78 A. (2d) 205 (Maryland 1951).*

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[1] J. A. M. A. 142: 1149 (April 15) 1950.

[2] Appropriate adjustments of these quotas may be made on request by the hospital in those instances in which bed capacities have been increased since 1950 or in which additional hospital services are presently being provided.

Admissibility in Evidence of Results of Chemical Tests for Intoxication.—The defendant was convicted of driving a motor vehicle while intoxicated. From such convinction he appealed to the court of criminal appeals of Texas.

The defendant admitted that he drove the vehicle at the time alleged but denied that he was intoxicated. He did, however, admit drinking four bottles of beer in the late afternoon and evening before his arrest. When taken to the City Hall by the police, the defendant signed a written permission for the officers to test his breath for alcohol by an instrument known as the Harger Drunkometer. The officers who arrested him and observed him after his arrest gave ample evidence to sustain the jury's verdict independent of the results of the chemical test, the court indicated. In addition to the testimony of the officers, however, Dr. Beerstecher, a research biochemist at the University of Texas, testified in part: "I am familiar with the instrument known as the Harger breath test; I have been studying that between ten and eleven months. I feel that the machine is extremely reliable. It shows how much alcohol is in a person's blood at the time the test was taken." On cross-examination, this witness stated: "There is disagreement among scientists as to the accuracy of the (Harger) breath test. A chemical analysis of the blood itself shows what per cent or proportion of alcohol is in that blood sample. The theory of the (Harger) breath test is that the breath indicates a per cent of saturation in the blood; it is a calculated proportion. This breath test is used in a number of states. From my work with this machine for some ten or eleven months, observing the officers making the tests, and from my knowledge as an expert on alcohol, my opinion is that the (Harger) machine is very reliable."

The chief contention made by the defendant, said the court of appeals, is that it was prejudicial error for the trial court to permit the State to introduce evidence of an alcohol breath test of the defendant and the results purportedly shown thereby because the State did not prove that such breath-test and its results are generally accepted by scientists as accurately establishing the alcoholic content of a subject's blood to show whether he was under the influence of intoxicating liquor and the extent of his intoxication. The objection, said court, is to the conclusion reached because Dr. Beerstecher, after qualifying as an expert witness, stated that there was a difference of opinion among scientists as to its accuracy. The position that it is incumbent upon the State in the trial of the case to prove that the test is scientifically accepted, said the court, may or may not be correct, depending upon the degree to which the fact is established by scientific research. This court may recognize generally accepted scientific conclusions, even though there should be some who disagree with them. In all probability a scientist may be found who will disagree with practically every generally accepted scientific theory. The opinion of such others by no means bars the evidence of a scientific truth before a jury, nor would it preclude the courts from taking judicial knowledge of the truth of it. Continuing, the court said that Northwestern University of Evanston, Illinois, has within the present year, 1950, published a work from which the court quoted. "Medical science, through years of research and experimentation, has established that it is not the amount of alcohol consumed by a person that affects his driving ability but the amount of alcohol absorbed into his blood, and thus circulated to the brain, that affects his nerves and, correspondingly, his mental and physical faculties. . . . The most commonly used methods of determining a person's blood alcohol concentration is to chemically analyze the blood, urine, or breath. The amount of alcohol in the latter two substances directly parallels the amount of alcohol in the blood and, therefore, from the amount of alcohol excreated through the kidneys or lungs, the concentration of alcohol in the circulating blood can be determined accurately and scientifically." When supported by such authorities, said the court, this proposal is persuasive in supporting the evidence of Dr. Beerstecher, if that evidence needs to be supported, as to the effect of alcohol in the blood. Dr. Beerstecher testified that the instrument in question is accurate and he gave his reasons for it. He admitted that there are others who disagree with its accuracy. The objection to his testimony, therefore, goes to its weight and not to its admissibility. Our conclusion, said the court, is that this evidence is admissible as presented to us in this record for whatever it is worth, and it was not reversible error to overrule the defendant's objection to it. Accordingly the defendant's conviction was sustained.—*McKay v. State, 235 S.W. (2d) 173 (Texas 1951).*

MEDICAL MOTION PICTURES

Rodney: 16 mm., color, sound, showing time 11 min. Produced in 1950 for the National Tuberculosis Association by Film Graphics, Inc., New York. Procurable on loan from local tuberculosis associations.

This motion picture deals entertainingly with the serious problem of tuberculosis control. The central figure is Rodney, a breezy caricature of typical American youth. During a routine physical checkup, the doctor discovers that Rodney has early tuberculosis; through his answers to Rodney's questions, he provides information about the spread, treatment, and cure of tuberculosis. These answers contain many positive statements that serve to correct misconceptions. Points that are strongly stressed are the importance of rest in tuberculosis, the importance of the tuberculosis hospital as the place for treatment, and the importance of the chest x-ray as a means of discovering tuberculosis in its early stage.

The producer indicates that the film is intended for high school and college students and that the discussion leader has an extremely important role to play at every showing. In the opinion of the reviewers, these are very important points. Guides for discussion leaders are available from the producer. The material presented is medically correct. However, the entertainment value appears at times to be greater than the teaching value. It is recommended for use mainly with high school students, as an introduction to a more detailed discussion of the subject. The photography and sound are excellent.

SELECTED FILMS FOR HOSPITAL ADMINISTRATION

The University Hospitals, State University of Iowa, have prepared a 32 page pamphlet listing 318 selected films of interest to hospital administrators and teachers of hospital administration. Copies of the pamphlet may be obtained from the Committee on Medical Motion Pictures of the American Medical Association or from the Extension Division, State University of Iowa, Iowa City.

MEDICAL LITERATURE ABSTRACTS

AMERICAN

A.M.A. Am. Journal Diseases Child., Chicago

81:465-616 (April) 1951

*Congenital Pulmonary Stenosis: Postoperative Observations on 214 Children. C. R. Leininger, S. Gibson and W. J. Potts.—p. 465.

Care, Feeding and Fate of Premature and Full Term Infants Born of Tuberculosis Mothers. B. Ratner, A. E. Rostler and P. S. Salgado.—p. 471.

Immunization in the Young Infant: Response to Combined Vaccines: I-IV. J. C. Peterson and A. Christie.—p. 483.

Immunization in the Young Infant: Response to Combined Vaccines: V. A. Christie and J. C. Peterson.—p. 501.

Immunization in the Young Infant: Response to Combined Vaccines: VI-X. J. C. Peterson and A. Christie.—p. 518.

Use of Antihistaminic Drug for Treatment of Common Cold at Summer Camp for Boys. P. Fisher.—p. 530.

Staphylococcic Infections in Hospital Nurseries and Pediatrics Wards. J. Felsen, J. Lapin, W. Wolarsky and others.—p. 534

Simplified Transparent Tuberculin Patch Test. H. Vollmer and D. R. Lyons.—p. 541.

Congenital Pulmonary Stenosis.—Leininger and his associates review the first 214 cases in which a Blalock or Potts-Smith procedure was attempted at Children's Memorial Hospital, Chicago. The preoperative diagnosis was tetralogy of Fallot in 199 cases and tricuspid atresia in 15. An anastomosis was performed in 199 patients. Eighteen children (9%) died in the immediate postoperative period; one child died in an automobile accident three months after operation, and 35 children were not seen after surgery. The remaining 145 patients were observed for postoperative periods ranging from six to 42 months. Paroxysmal dyspnea, which occurred in 66 children prior to surgery, was not observed in any patient postoperatively. The average preoperative values for red blood cell count and hemoglobin level were 6,930,000 per cubic millimeter and 18.3 gm. per 100 cc. respectively; the average postoperative values were 5,350,000 per cubic millimeter and 14.4 gm. per 100 cc. The decrease in cyanosis following surgery was usually immediate and pronounced, and, in the majority of cases, this improvement remained essentially unchanged throughout the period of observation. The decrease in the clubbing of the fingers and toes was fairly complete by the end of the first year. The increase in exercise tolerance was encouraging in all cases and dramatic in a few. The heart enlarged to some degree after surgery in all cases. Minimal (5 to 10%) cardiac enlargement occurred in seven patients, in spite of excellent improvement in cyanosis and exercise tolerance following surgery. Most of the patients showed mild (15 to 35%) cardiac enlargement, which usually occurred within the first six months after surgery. Seven showed severe (85 to 180%) cardiac enlargement with chronic heart failure requiring digitalis therapy. In each of these cases, unusual cardiac enlargement was apparent within six months after surgery and there was no significant increase after 12 months. Four of these showed symptomatic improvement and decreased cyanosis in spite of marked cardiac enlargement. One patient died 11 months after surgery and four months after digitalis medication was started; another was given digitalis therapy four months after surgery and died seven months postoperatively. Postmortem examination revealed similar findings in each case; a tetralogy of Fallot with a partly overriding aorta was present. Two other patients in this series manifested cardiac failure with severe enlargement of the heart. Five patients in addition to those described above died during the three-and-one-half year period of observation. Autopsy in two of the cases revealed transposition of the great vessels in addition to pulmonary stenosis. It was concluded that the Blalock or Potts-Smith procedure alleviates the symptoms occurring in certain types of congenital pulmonary stenosis.

A.M.A. Arch. Ophthalmology, Chicago

45:365-506 (April) 1951

Harada's Disease and Vogt-Koyanagi Syndrome: Uveoencephalitis. A. R. Cowper.—p. 367.

Scope and Limitations of Orthoptics in Nonsurgical Treatment of Ocular Deviations. H. M. Burian.—p. 377.

Experimental Cataract Produced by Three Centimeter Pulsed Microwave Irradiations. A. W. Richardson, T. D. Duane and H. M. Hines.—p. 382.

Theory of Ocular Dominance. G. L. Walls.—p. 387.

Iris Cyst Following Traumatic Implantation of Glass Splinter, and Foreign Body Probably Retained in Ciliary Area 45 Years. M. Cohen.—p. 413.

Postdiphtheritic Cycloplegia: Report of Two Cases. T. R. Gaines.—p. 416.

Rose Bengal Test in Diagnosis of Deficient Tear Formation. H. W. Forster Jr.—p. 419.

Peripheral Fusion. J. E. Winkelman.—p. 425.

Experimental Studies on Early Lens Changes After Roentgen Irradiation: II. Exchange and Penetration of Radioactive Indicators (Na^{24}, K^{42}, I^{131}, P^{32}) in Normal and Irradiated Lenses of Rabbits. L. von Sallmann and B. D. Locke.—p. 431.

Enucleation and Cosmetic Rehabilitation: Criteria for Evaluation of Current Procedures. A. M. Culler.—p. 445.

Amaurosis Fugax et Amaurosis Fulminans. S. Behrman.—p. 458.

A.M.A. Arch. Pathology, Chicago

51:361-472 (April) 1951

Arteritis, Carditis, Glomerulonephritis and Bilateral Renal Cortical Necrosis Induced in Rabbits by Injection of Horse Serum or Bovine Gamma Globulin Combined with Killed Group A Streptococci or Freund's Adjuvant. R. H. More and S. D. Kobernick.—p. 361.

Effect of Tween 80® on Serum Lipids and Tissues of Cholesterol-Fed Rabbits. T. P. B. Payne and G. L. Duff.—p. 379.

*Possible Pathogenic Mechanisms Responsible for Human Periarteritis Nodosa, as Suggested by Occurrence of Two Instances of this Disease in Association with Glomerulonephritis. G. F. Kipkie and D. S. Johnson.—p. 387.

Fuchsinophilia in Adrenal Cortex: Critical Examination of Broster-Vines Technic. A. D. Zinsser and H. H. Zinsser.—p. 393.

Correlation Between Cytoplasmic Basophilia and Nucleic Acid Content of Liver. E. Farber, D. Koch-Weser, P. B. Szanto and H. Popper.—p. 399.

Basophilic Cytoplasmic Material (Pentose Nucleic Acid): Distribution in Normal and Abnormal Human Liver. P. B. Szanto and H. Popper.—p. 409.

Morphologic Lesions Due to Acute and Subacute Poisoning with Antifreeze (Ethylene Glycol). D. E. Smith.—p. 423.

Congenital Alveolar Dysplasia of Lungs. N. Kaufman and R. K. Spiro.—p. 434.

Changes in Serum Lipids of Rabbits with Acute Uranyl Nitrate Poisoning. F. C. Bauer Jr., G. C. Johnson, L. Carbonaro and E. F. Hirsch.—p. 441.

Thoracic Venous Anomalies: III. Atresia of Common Pulmonary Vein. Pulmonary Veins Draining Wholly into Superior Vena Cava (Case 3). IV. Stenosis of Common Pulmonary Vein (Cor Triatriatum) (Case 4). J. E. Edwards, J. W. DuShane, D. L. Alcott and H. B. Burchell.—p. 446.

Pathogenesis of Periarteritis Nodosa; Occurrence in Association with Glomerulonephritis.—The histories of two patients with periarteritis nodosa are presented. Both patients had glomerulonephritis. It is suggested that the periarteritis was due to: (1) the same pathogenic process that was responsible for the glomerulonephritis; (2) hypertension, or (3) a sulfonamide compound and was an allergic reaction. Studies and observations on these patients do not permit the conclusion that the periarteritis nodosa was due specifically to the operation of any one of the suggested mechanisms. One of the two cases is the second on record in which periarteritic lesions occurred exclusively in the lungs.

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Titles marked with an asterisk (*) are abstracted.

American Journal of Hygiene, Baltimore

53:121-236 (March) 1951. **Partial Index**

Immunization of Cotton Rats with Inactivated Lansing Poliomyelitis Virus: I. Inactivation by Chemical Agents. C. E. Schwerdt, G. W. A. Dick, R. M. Herriott and H. A. Howe.—p. 121.
Id.: II. Inactivation by Physical Methods. G. W. A. Dick, C. E. Schwerdt, W. Huber and others.—p. 131.
The in Vitro Effect of Aureomycin and Chloromycetin on Cultures of Endamoeba Histolytica and Trichomonas Hominis: I. Ability of Antibiotics to Prevent Growth and Multiplication of Organisms. J. G. Shaffer and J. Z. Biegeleisen.—p. 139.
Id.: II. Disappearance of Organisms from Cultures Treated with Antibiotics. J. Z. Biegeleisen and J. G. Shaffer.—p. 146.
*Further Studies on Preparation of Smallpox Vaccine by Chick-Embryo Method. G. J. Buddingh and C. C. Randall.—p. 152.
Life History and Breeding Habits of Eye Gnat, Hippelates Pusio Loew, in Coachella Valley, Riverside County. R. W. Burgess.—p. 164.
Diphtheria Immunization Studies of Students in Urban High School. G. James, W. A. Longshore Jr. and J. L. Hendry.—p. 178.
Postinfection Murine Typhus Antibodies in Sera of Rodents. E. R. Rickard.—p. 207.
Control of Anopheles Pseudopunctipennis in Mexico with DDT Residual Sprays Applied in Buildings: Part IV. Activity Pattern of Adult A. Pseudopunctipennis Theo. E. Bordas and W. G. Downs.—p. 217.
Common Respiratory Disease in Recruits. P. E. Sartwell.—p. 224.

Chick Embryo Method of Preparing Smallpox Vaccine.—A new method for the preparation of smallpox vaccine became available with the successful propagation of vaccinia virus in the chorioallantois of the developing chick embryo. It is felt that the chick embryo may be safely substituted for the calf as a source for vaccine. Studies on the behavior of vaccinia virus in the chick embryo revealed the following points: 1. The best source for chick embryo-propagated smallpox vaccine is the 36 to 48 hour membranal lesions obtained by carefully titrated inoculation of the 11 or 12 day chorioallantois. 2. A vaccine with the qualities of potent calf lymph can be prepared in quantity from the first passage in the chorioallantois. 3. Buffer saline serum is a superior protective diluent for smallpox vaccine prepared by the chick embryo method. 4. Smallpox vaccines prepared as 1-in-50 suspensions in buffer saline serum have keeping qualities superior to those prepared as 1-in-10 or 1-in-15 suspensions. The 1-in-50 suspensions meet the required standard potency titration tests after at least one year of storage at 0 to 5 C.

Am. Practitioner & Digest of Treatment, Philadelphia

2:217-304 (March) 1951

*Stellate Ganglion Block in Cerebral Thrombosis and Embolism: Preliminary Report. I. Sussman, R. Lempke and R. Wallace.—p. 217.
Complications of Gastric and Intestinal Intubation. L. J. Kleinsasser. —p. 221.
Endocrine Therapy in Treatment of Diseases of Prostate Gland. N. J. Heckel.—p. 228.
Cytologic Examination of Gastric Washings. N. R. Bothereau.—p. 231.
Injuries to Elbow Region. I. W. Kaplan.—p. 234.
Normal Diet; Variations in Diseased Conditions, and in Management of Hepatic Diseases. S. P. Lucia and N. Simmonds.—p. 238.
Hospitalization in Treatment of Neuroses. H. B. Smith and L. H. Smith.—p. 241.
Evaluation of Sex Hormones in Treatment of Male Infertility. N. J. Heckel.—p. 247.
Symptomatic Treatment of Common Cold. H. J. Johnson Jr.—p. 250.
Pleural Eosinophilia with Special Reference to Its Association with Pulmonary Emboli. L. E. Danzig and R. H. Pope.—p. 254.
Emotional Significance of Cancer: Psychiatric Conference. H. C. Shands, H. H. W. Miles and S. Cobb.—p. 261.
Pulmonary Embolism—Present Status. W. F. Renner.—p. 266.

Stellate Ganglion Block in Cerebral Thrombosis.—The rationale for the use of stellate ganglion block in the treatment of cerebral thrombosis is that it causes dilatation of the cerebral vessels, thereby limiting the vasospasm and subsequent anoxic damage that usually follows occlusion of a cerebral vessel by a thrombus or embolus. Stellate ganglion block was done on alternate patients with a clinical diagnosis of cerebral thrombosis or embolism admitted to the medical service of the Jersey City Medical Center. Twenty patients had stellate ganglion block, and 22 patients served as controls. The anterolateral approach and the infiltration and diffusion technique were used, so that the middle cervical ganglion was also blocked. A total of 56 blocks were performed. The procedure was repeated daily, until there was no further evidence of improvement or until the patient's symptoms cleared. Forty-five per cent of the controls died, but only 30% of those receiving stellate ganglion block died. Many patients noted varying degrees of improvement immediately following the block. One patient died as the result of the stellate ganglion block. A thorough knowledge of the anatomy of the region and a careful technique are required, so that such serious accidents may be avoided.

Angiology, Baltimore

2:1-84 (Feb.) 1951

Effect of Sympathicolytic Drugs on Cardiovascular System in Man with Special Reference to Hypertension. R. H. Goetz.—p. 1.
*Prevention of Thromboembolism. L. Loewe, L. Berger and R. P. Lasser.—p. 26.
Effect of Adrenalectomy and DCA on Radioisotope Intramuscular Clearance and Distribution in Rat. F. R. Franke, J. B. Boatman and R. S. George.—p. 46.
Photometrical Studies on Viscerocutaneous Reflexes with Vasoconstriction in Venous Capillaries (Wernoe's Symptom) in Gall-Bladder Diseases. J. Adams-Ray.—p. 51.
Experimental Arterial Stenosis: Post Stenotic Dilatation and Collateral Blood Flow. J. Flasher, D. R. Drury and G. Jacobson.—p. 60.
Bilateral Dorsal Sympathectomy for Hyperhidrosis: Comparison of Response to Adrenalin and Pilocarpine of Pre-Ganglionic and Post-Ganglionic Sympathectomy in Same Patient. C. J. Mock and O. C. Julian.—p. 71.
Trendelenburg Test: Recommended Changes in Terminology. A. M. Tunick.—p. 77.

Prevention of Thromboembolism.—The authors believe that the frequency of thromboembolic disease in both medical and surgical patients warrants the adoption of broad prophylactic measures to reduce this incidence. In preoperative surgical patients the following procedures should be done routinely: reduction of weight in the presence of obesity, correction of varicose veins if feasible, medical supervision of cardiac abnormalities, correction of anemia, and administration of a diet with high carbohydrate and vitamin content. Recommended postoperative prophylactic measures include early ambulation, leg exercises in bed, avoidance of compression of calf veins, use of elastic stockings in those with varicose veins, and use of anticoagulant drugs. Of these, repository heparin is the most suitable because of its simplicity of administration, rapid and prolonged effect, wide margin of safety, and requirement of minimal laboratory control. Prophylactic vein ligation should be reserved for patients in whom anticoagulants might aggravate a bleeding tendency, and for chronically bed-fast patients who have thromboembolic potentialities. The entire program of postoperative prophylaxis should be applied to all patients who (1) have a history of thromboembolic or occlusive arterial disease, (2) are in cardiac failure, (3) have large hearts or auricular fibrillation, (4) are obese, debilitated, polycythemic, or anemic, and (5) are over 50 and have no specific contraindication to anticoagulant administration. For the majority of normal patients below the age of 50 prophylaxis can be withheld unless periodic examination of the lower extremities reveals early phlebothrombosis. The authors report a decrease in the incidence of thrombosis and pulmonary embolism in a series of 102 postoperative patients receiving prophylactic anticoagulant therapy as contrasted with 102 control postoperative patients. They outline specific prophylactic programs for postpartum and orthopedic patients and for those with myocardial infarction, auricular thrombus and embolization, or recurrent idiopathic thromboembolism. In addition, they suggest that repository heparin may be useful in the therapy of thromboangiitis obliterans, diabetic atherosclerosis, endarteritis obliterans, and frostbite.

Arizona Medicine, Phoenix

8:1-92 (March) 1951

Indications for Resection in Pulmonary Tuberculosis. P. C. Samson. —p. 29.
Chloroma (Case Report). E. G. Lopez Quinones, R. Garcia B. and E. Contreras.—p. 33.
Treatment of Bursitis with Intravenous Iron Cacodylate. C. E. Bensema and A. N. Shoun.—p. 37.
Effect of Concentration of Sera on Serological Tests for Syphilis. E. L. Breazeale and L. F. Pierce.—p. 41.

Arkansas Medical Society Journal, Fort Smith

47:169-202 (March) 1951

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State Hospital Problems in the Midwest. E. R. Smith.—p. 172.
Major Trigeminal Neuralgia (Tic Douloureux). R. Watson.—p. 175.

California Medicine, San Francisco

74:151-224 (March) 1951

An Evaluation of Cesarean Section. T. R. Nanninga and H. A. Stephenson.—p. 151.
Preliminary Studies of Gastrointestinal Tract with Colloidal Barium. F. Windholz, H. S. Kaplan and H. H. Jones.—p. 155.
Treatment of Mediastinal Tumors. P. C. Samson and D. J. Dugan.—p. 161.
*Antibiotics in Management of Staphylococcal Endocarditis: With Special Reference to Increasing Bacterial Resistance. D. C. Levinson, G. C. Griffith and H. E. Pearson.—p. 167.
Private Practice—Health Department Relationships: How Can They Be Improved? E. L. Russel.—p. 171.
Funnel Chest (Pectus Excavatum) in Infancy and Adult Life. A. L. Brown and O. Cook.—p. 174.
The California Tumor Registry. L. Breslow, J. W. Ellis, M. C. Eaton and G. D. Kleinman.—p. 179.
*Return of Vestibular Function Following Streptomycin Toxemia. J. S. Chase.—p. 185.
Prevention of Injury From X-Radiation. F. R. Holden, E. Tochilin, C. H. Hine and L. Lewis.—p. 188.
Therapeutic Perspective. J. R. Scholtz and C. Williamson.—p. 193.
Thalassemia (Mediterranean Disease) Occurring in Filipinos and Chinese. J. M. Nilsson, H. Mills and G. W. Miners.—p. 195.
Irradiation Treatment of Lymphoid Hyperplasia of Nasopharynx. J. B. Irwin.—p. 198.

Antibiotics in Staphylococcic Endocarditis.—Eighteen patients with staphylococcic endocarditis were observed over a three year period. In nine of the cases the etiological organism was Staphylococcus aureus, and in the remaining nine it was Staphylococcus albus. Twelve patients died, six in each etiological group. Of those with Staphylococcus aureus endocarditis who survived, only one responded to 20,000,000 units of penicillin daily. The other two responded dramatically to aureomycin given in a dose of 1 gm. every four hours. Two of the three surviving patients with Staphylococcus albus endocarditis responded to penicillin. In the third patient the organism was resistant to penicillin but relatively sensitive to aureomycin. Therapy consisted of penicillin in a dose of 2,000,000 units every three hours intramuscularly and 1 gm. of aureomycin every six hours. Within 24 hours after beginning of the therapy the temperature was restored to normal. In vitro bacterial sensitivity studies were done in 15 of the 18 patients. In 10, the organism was relatively resistant to penicillin. The infecting agent showed aureomycin sensitivity in three of four cases in which the organism was penicillin-fast. In one patient increasing resistance to aureomycin developed during therapy. Intially 5 γ of aureomycin per cubic centimeter of culture were required for in vitro inhibition. At the end of 10 days of aureomycin therapy, the amount necessary had increased to 40 γ. Results of sensitivity studies and therapeutic response reported suggested that aureomycin may be effective when bacterial resistance to penicillin is observed. Staphylococcic resistance to aureomycin may develop.

Vestibular Function Following Streptomycin Toxemia.—Of 62 patients with pulmonary tuberculosis who were given 2 gm. of streptomycin daily for an average of 110 days, 42 had complete loss of vestibular response to caloric stimulation. In the great majority of cases, response returned in varying degrees over a period of two years. More patients weighing less than 125 pounds (56.7 kg.) lost response than did heavier patients, and the rate of loss was also higher among patients aged over 45. Response returned earlier in the younger patients than in the older. Of 215 patients with pulmonary tuberculosis who were given 1 gm. of streptomycin daily for an average of 110 days, 18 had complete loss of vestibular response to caloric stimulation. Sixteen regained response within a year, one in 17 months and one was lost to study.

Cancer, New York

4:1-220 (Jan.) 1951. Partial Index

Duration of Life in Untreated Cancer. M. B. Shimkin.—p. 1.
My Conception of Cellular Nevi. P. Masson.—p. 9.
*Study of Natural History of Acute Leukemia with Special Reference to Duration of Disease and Occurrence of Remissions. C. M. Southam, L. F. Craver, H. W. Dargeon and J. H. Burchenal.—p. 39.
Arrhenoblastoma: Incidence of Malignancy and Relationship to Pregnancy, to Sterility, and to Treatment. C. T. Javert and W. F. Finn.—p. 60.
Embryological Tumor of Retinal Anlage Involving Skull. B. E. Clarke and H. Parsons.—p. 78.
Third Case of So-Called Retinal Anlage Tumor. H. Martin and F. W. Foote Jr.—p. 86.
Case for Prophylactic Neck Dissection. H. Martin.—p. 92.
Composite Operation for Radical Neck Dissection and Removal of Cancer of Mouth. G. E. Ward and J. O. Robben.—p. 98.
Replacement of Lining to Oral Cavity Following Surgery. M. T. Edgerton Jr.—p. 110.
Resection of Bony Thoracic Wall for Solitary Hematogenous Metastatic Tumors. G. N. J. Sommer Jr.—p. 120.
Effect of Portal Cirrhosis on Development of Carcinomas. J. W. Hall and Shao-Chien Sun.—p. 131.
Hormone-Treated Primary Operable Breast Carcinoma: Pathological Study of 33 Cases. J. T. Godwin and G. C. Escher.—p. 136.
Carcinoma in Situ of Right Lower Bronchus: Case Report. G. N. Papanicolaou and I. Koprowska.—p. 141.
*Cytological Diagnosis of Mammary Cancer Associated with Incipient Paget's Disease of Nipple. M. J. Eisen and R. H. Taft.—p. 150.
New Perspectives in Cancer Cytology. C. Barigozzi and G. Dellepiane.—p. 154.
Virus-Like Bodies in Human Cancer. Electron-Microscope Study of Filterable Components of Normal and Neoplastic Tissue. J. D. Fox.—p. 168.
Relationship of Cancer to Phosphate Loss of Erythrocytes. A. F. Reid and E. B. Ryan.—p. 184.
Anabolic Metabolism of Radioactive Sulfate by Animal Tissues in Vitro and in Vivo. L. L. Layton.—p. 198.

Natural History of Acute Leukemia.—A study was made of 114 male patients and 58 female patients with acute leukemia. The patients were between the ages of 2 months and 73 years and were seen at Memorial Hospital, New York, from 1926 through 1948. Twenty-two of these patients were admitted after May 1948 and were treated with pteroylglutamic acid (folic acid) antagonists. They were excluded from the total group of 172 patients for computation of survival times and remissions but were included in all other analyses. Symptoms, signs, and hematological data were briefly considered. It was found that 8.7% of the 150 patients had some degree of temporary remission but that only 4% had complete temporary remissions. No patient in this group had more than a single remission. Remissions appeared unrelated to type of preceding treatment or to infection. Mean survival time from the onset of symptoms was 20.3 weeks. The longest survival was 58 weeks, but 50% of the patients were dead by 17 weeks and 90% by 36 weeks. Roentgen therapy, nitrogen mustards, radioactive phosphorus, and urethane were all without significant therapeutic effect. Improved supportive measures, such as antibiotics and generous use of blood transfusions, appear to have caused a slight but significant increase in survival time. Sixteen illustrative cases are reported in detail.

Cytological Diagnosis of Breast Cancer with Paget's Disease.—The occurrence of intraductal cancer of the breast associated with beginning Paget's disease of the nipple in a woman aged 41 is reported. There were no palpable masses in the breast. The intraductal mammary cancer was not clinically detectable by the usual means, and the diagnosis of the neoplasm was first established by cytological examination of smears made from a discharge collected from the mouth of the lactiferous duct. The smears were prepared according to Papanicolaou's technique, and cancer cells were identified in the material. Intermittent discharge from the nipple, the symptom of the intramammary lesion, preceded by six months the appearance of an erosion of the apex of the nipple, a biopsy of which revealed the characteristic evidence of Paget's disease. This sequence lends additional support to the view that Paget's disease of the nipple is secondary to intramammary carcinoma.

Circulation, New York

3:321-480 (March) 1951

*Acute Nonspecific *Pericarditis: Clinical, Laboratory and Follow-up Considerations.* D. B. Carmichael, H. B. Sprague, S. M. Wyman and E. F. Bland.—p. 321.
*Effect of Choline upon Experimental Canine Arteriosclerosis. J. D. Davidson, W. Meyer and F. E. Kendall.—p. 332.
White Thromboembolism in the Hamster Cheek Pouch after Trauma, Infection and Neoplasia. B. R. Lutz, G. P. Fulton and R. P. Akers. —p. 339.
*Beriberi Heart in Iowa Veterans. C. H. Gutenkauf.—p. 352.
Mural Thrombosis and Arterial Embolism in Mitral Stenosis. Clinicopathologic Study of 51 Cases. R. A. Jordan, C. H. Scheifley and J. E. Edwards.—p. 363.
Variations in Electrocardiographic Responses during Exercise. Studies of Normal Subjects Under Unusual Stresses and of Patients with Cardiopulmonary Diseases. P. N. G. Yu, R. A. Bruce, F. W. Lovejoy Jr. and M. E. McDowell.—p. 368.
Determinants of Impairment of Cardiac Filling During Progressive Pericardial Effusion. W. E. Nerlich.—p. 377.
Isolation of Hypertension from Circulating Blood of Normal Dogs with Experimental Renal Hypertension by Dialysis in Artificial Kidney. L. T. Skeggs, J. R. Kahn and N. P. Shumway.—p. 384.
Intracardiac Manometer: Its Evaluation and Application. E. J. Ellis, O. H. Gauer and E. H. Wood.—p. 390.
Lack of Effect of Oral Doses of Cinchona Alkaloids on Circulation of Dogs with Renal Hypertension: Contrast to Their Action in Neurogenic Hypertensin. I. Greene and E. P. Hiatt.—p. 399.
Effect of Digitoxin on Sodium Excretion, Creatinine Clearance and Apparent Cardiac Output. M. J. Greve, E. E. Eddleman Jr., K. Willis and others.—p. 405.
Studies of Tissue Response to Injections of Enzymes: V. Development of Subcutaneous Nodular Masses, and Plasma and Tissue Hexosamine Changes Following Subcutaneous Injection of Streptokinase. S. T. Schlamowitz and A. C. DeGraff.—p. 413.
Studies on Spread of Excitation Through Ventricular Myocardium. R. D. Pruitt, H. E. Essex and H. B. Burchell.—p. 418.
Extremity and Circumferential Chest Lead Electrocardiogram in Induced Acute Coronary Insufficiency. K. Chesky, A. M. Master, H. S. Arai and L. Pordy.—p. 433.
Characteristics of Unipolar Precordial Electrocardiogram in Normal Infants. R. F. Ziegler.—p. 438.
Emotion and Circulation. M. D. Altschule.—p. 444.

Acute Nonspecific Pericarditis.—Thirty-five male and 15 female patients between the ages of 10 and 70 with acute nonspecific pericarditis are reported on. Forty-five of these patients were followed up for two to 18 years. The commonest presenting complaint was pain generalized over the entire anterior chest or limited to certain areas of the chest. The variable nature of the pain and the difficulty of differentiating it from the pain of other cardiac and pulmonary diseases was apparent. Malaise, fever, cough, and dyspnea were the commonest accompanying complaints. A pericardial friction rub, the physical finding of greatest significance in the diagnosis of this disease, was heard in 37 patients. Enlargement of the cardiac shadow was observed in 25 instances, and pleural fluid was also noted in 14 instances. Follow-up examination showed that in general the majority of the patients were in excellent health. Six patients had recurrences, and a recurrence was suspected in three additional patients. In general, recurrences were of less intensity and of shorter duration than the initial illness. One patient died of chronic hypertensive cardiovascular disease, which had been present for years prior to the episode of acute pericarditis. Despite the excellent prognosis indicated by the results of the follow-up examinations, residual significant electrocardiographic abnormalities were observed in six patients. Of 37 patients of whom x-ray follow-up examination was made, three had left ventricular enlargement and six had prominent left ventricle without cardiac enlargement. There was pericardial calcification in only one patient, and fluoroscopy revealed a diminution in the amplitude of cardiac contraction, but there was no evidence of impaired function. The prevailing theories of causation of acute nonspecific pericarditis include virus or tuberculous infection of the pericardium and pericardial response to unknown toxins or hypertension.

Choline and Experimental Canine Arteriosclerosis.—Studies were made on the possible therapeutic effect of large amounts of dietary choline on arteriosclerosis produced in dogs by a regimen of cholesterol and thiouracil feeding. Three dogs were used for a 14 month pilot experiment and six dogs for a later four month experiment. In the serum level of cholesterol or phospholipids, in the degree of fatty infiltration of the liver, and in the extent and severity of the arterial lesions, dogs receiving the largest amount of choline that they could tolerate did not differ from control dogs receiving no added choline.

Beriberi Heart in Iowa Veterans.—Five alcoholic veterans between the ages of 32 and 39 showed signs compatible with a diagnosis of beriberi heart disease, namely, cardiac failure, polyneuritis and cardiac enlargement. None of these Iowa residents had been a prisoner of the Japanese. In the occident, alcoholism and a thiamine-poor diet are jointly responsible for the majority of cases of beriberi. The thiamine intake of each of the five alcoholics had been approximately 0.15 to 0.26 mg. per 1,000 calories, while an average young adult requires 0.25 to 0.35 mg. of thiamine per 1,000 calories of balanced diet. Four patients showed moderate improvement of signs of congestive failure with rest and the usual hospital diet. Specific therapy consisted of administration of thiamine in daily doses of 20 mg. intramuscularly and 20 mg. orally. In addition, a high protein diet was given with oral and parenteral supplements of all vitamins. All patients improved after treatment, and, in two instances, there was significant reduction in cardiac size. Edema and symptoms of congestive failure disappeared in seven to 10 days, but two patients had persistent tachycardia for several weeks. The loss of edema may have been accelerated in four instances by sodium restriction. Maximal decrease in heart size occurred in from one to two months. Although none of the author's patients had a control period of thiamine-free diet, their response to therapy was typical of beriberi heart disease. Because beriberi is a reversible form of heart disease, as shown by these five patients, its early diagnosis is important.

Experimental Medicine and Surgery, Brooklyn

9:1-206 (Feb.) 1951. Partial Index

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Ventricular Complex in Direct Leads from Auricles and Great Vessels. F. M. Groedel, M. Miller and P. R. Borchardt.—p. 48.
Moniliasis of Female Genital Tract (Etiological and Experimental Observations). Y. M. Bromberg, A. Brzezinski and F. Raubitschek.—p. 79.
Polyphasic Adsorption Therapy in Food Poisoning. A. L. Lichtman. —p. 90.
Comparative Effects of Growth Hormone and Liver Residue on Gain in Body Weight of Immature Hyperthyroid Rats. B. H. Ershoff.—p. 98.
Adrenal and Thyroid Weights in Rats Following High Protein Diets and Testosterone Propionate. J. H. Leathem.—p. 138.
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Journal of Allergy, St. Louis

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Effect of ACTH on Immediate Skin Reaction and Passive Transfer Test in Man. W. Leith, M. J. Graham and W. S. Burrage.—p. 99.
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Allergenic Fractions of Low Ragweed Pollen: II. Some Immunologic, Electrophoretic, and Chemical Characteristics of Diffusates. M. H. Loveless, I. Wright and A. Ryan.—p. 120.
Small Intestine Roentgen Studies in Food Allergy. M. J. Lepore, L. C. Collins and W. B. Sherman.—p. 146.
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Pollen Tannate Suspended in Peanut Oil with Aluminum Monostearate in Treatment of Hay Fever. H. L. Naterman.—p. 175.
Vitamin B_{12} Therapy in Allergy and Chronic Dermatoses. S. W. Simon. —p. 183.

J. American Med. Women's Assn., Nashville, Tenn.

6:83-124 (March) 1951. **Partial Index**

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Family Life and Sex Education: Program in Los Angeles Public Schools. H. B. Randall.—p. 96.
Traveling Child Guidance Clinic: Role of School in Its Functioning. A. A. Gronlund.—p. 99.
*Management of Children with Heart Disease: Denver Public School Health Program. M. Doster.—p. 101.

School Health Program for Children with Heart Disease.—The high death rate from rheumatic heart disease among school children in Colorado and in Denver stimulated special interest in this disease. A rheumatic fever diagnostic service was developed. The Colorado Heart Association directs the policies of the clinic and has assumed an increasing share of the expense. Work of the clinic greatly sharpened the awareness of both the physicians and the general public to the problems of heart disease in children. During the first four years of its operation, 3,235 children were referred to the Denver Rheumatic Fever Diagnostic Service; 16.2% were shown to have rheumatic heart disease, and 6.2% were proved to have congenital heart defects. A small group were considered to have potential rheumatic heart disease and are being watched. Children classified as having possible, potential, or proved rheumatic heart disease are urged to have reexaminations the next year, or even sooner if evidences of the rheumatic state recur or other adverse conditions intervene. The prevention of false cardiac cripples is as important as adequate care in the real cardiac cases. In this selected group of children with heart murmurs or evidences of the rheumatic state, 67.3% had no cardiac disease. Children with active rheumatic fever are placed under medical treatment at once, either in private hospitals, at home, or in clinics. Children with congenital heart disease face a far brighter future than even a decade ago.

Journal of Applied Physiology, Washington, D. C.

3:513-572 (March) 1951

Effect of Adrenaline on Resistance to Gas Flow in Respiratory Tract and on Vital Capacity of Normal and Asthmatic Subjects. M. B. Sheldon Jr. and A. B. Otis.—p. 513.
Alveolar-Arterial Oxygen Difference—Comparison of Two Methods. B. G. Ferris Jr., H. A. Kriete and B. C. Kriete.—p. 519.
Composition of Alveolar Air and Volume of Pulmonary Ventilation During Long Exposure to High Altitude. R. L. Riley and C. S. Houston.—p. 526.
Positive and Alternating Positive-Negative Pressure Resuscitation from Curare Poisoning. S. W. Handford and N. V. Ricchiuti.—p. 535.
Clot-Accelerating Property of in Vitro Epinephrine and Nor-Epinephrine on Whole Blood Coagulation. J. M. Waldron.—p. 554.
Pteroylglutamic Acid Clearance in Normal Adults. C. W. Denko.—p. 559.
Regional Differences in Some of Physical Properties of Human Femur. F. G. Evans and M. Lebow.—p. 563.

Journal Clin. Endocrinology, Springfield, Ill.

11:119-234 (Feb.) 1951

Cortisone plus Insulin in Palliative Treatment of Rheumatoid Arthritis: Preliminary Study. E. Henderson, J. W. Gray, M. Weinberg and others.—p. 119.
Induction and Maintenance of Decidual Changes with Progesterone and Estrogen. R. C. Long and J. T. Bradbury.—p. 134.
Effect of Steroid Hormones in Rheumatic Heart Disease. T. F. Brewer.—p. 146.
Adrenal Cortical Metabolism in Chronic Liver Disease. A. M. Bongiovanni and W. J. Eisenmenger.—p. 152.
Effect of Testosterone on Pituitary-Adrenal Cortex Mechanism in Noncancerous and in Breast Cancer Subjects. W. W. Faloon, L. A. Owens, M. C. Broughton and L. W. Gorham.—p. 173.
Pituitary-Adrenal Relationship in Full-Term and in Premature Infants, as Evidenced by Eosinophil Response. J. W. Jailer, A. S. H. Wong and E. T. Engle.—p. 186.
Adrenal Cortical Changes in Rats with Various Types of Experimental Hypertension. H. W. Deane and G. M. C. Masson.—p. 193.
Methylandrostenediol: Protein-Anabolic Steroid with Little Androgenic Activity. G. S. Gordan, E. Eisenberg, H. D. Moon and W. Sakamoto.—p. 209.
Observations on Use of Male North American Frog (Rana Pipiens) in Pregnancy Diagnosis. S. L. Robbins.—p. 213.
Pituitary Infantilism Treated with Purified Growth Hormone, Thyroid, and Sublingual Methyltestosterone: Case Report. F. R. Escamilla and L. Bennett.—p. 221.

Michigan State Medical Society Journal, Lansing

50:225-344 (March) 1951

Development, Use and Effects of Atomic Energy. M. Miller.—p. 253.
Instrumentation.. K. E. Corrigan.—p. 257.
Pathologic Changes Produced by Radiation Effects of Atomic Bomb. O. A. Brines.—p. 262.
Blood Procurement in Time of Disaster. D. H. Kaump and J. A. Kasper.—p. 264.
Medical Problems of Evacuation. A. B. McGraw and J. E. Cole.—p. 267.
Decontamination. L. E. Holly.—p. 269.
Survival Shelters, Emergency Supplies and First Aid Kits. J. J. Grebe.—p. 271.
Management of Patients Burned by Atomic Explosion. M. M. Musselman and R. E. L. Berry.—p. 275.
Psychiatric Aspects of Civilian Defense. R. W. Waggoner and L. E. Himler.—p. 278.
Doctor's Responsibility in Atomic Diseases. V. A. Getting.—p. 282.
Mass Blood Typing Program of Jackson, Michigan. J. H. Ahronheim.—p. 288.
Outline of Medical Defense Activities in Wayne Medical Society. C. D. Benson and M. L. Lichter.—p. 289.
Take Cover! Atomic Bomb! R. A. Atlas.—p. 294.

Minnesota Medicine, St. Paul

34:193-280 (March) 1951

Human Relations—International and Local. W. Ogden.—p. 213.
Fertility in Cryptorchids. C. E. Rea.—p. 216.
Minnesota Reports Heart Disease. D. S. Fleming and B. Wolcyn.—p. 218.
Chronic Alcoholic and Antabuse Therapy. J. V. Wallinga.—p. 221.
Assassination and Gunshot Wound of President James A. Garfield. O. W. Parker.—p. 227.
Spontaneous Pneumothorax Complicating Bronchial Asthma Due to Wood Dust. J. S. Blumenthal.—p. 234.

Neurology, Minneapolis

1:1-98 (Jan.-Feb.) 1951

Past, Present and Future of Neurology in the United States. P. Bailey.—p. 1.
Cerebellopallidal Anisosthenia. R. Bing.—p. 10.
Pendulousness of Legs as Diagnostic Test. R. Wartenberg.—p. 18.
Electroencephalogram in Intracranial Aneurysms. E. Roseman, B. M. Bloor and R. P. Schmidt.—p. 25.
Spinal Cord Tumors with Minimal Neurologic Findings. F. P. Moersch, W. M. Craig and L. A. Christoferson.—p. 39.
Role of Birth Injury and Asphyxia in Idiopathic Epilepsy. J. M. Nielsen and C. B. Courville.—p. 48.
Polycythemia Vera and Nervous System. D. R. Johnson and W. S. Chalgren.—p. 53.
Newer Drugs in Treatment of Parkinsonism. L. J. Doshay and K. Constable.—p. 68.

New England Journal of Medicine, Boston

244:347-384 (March 8) 1951

Gall-Bladder Surgery in Community Hospital. R. H. Thompson.—p. 347.
*Interstitial Myocarditis in Children. C. G. Tedeschi and T. D. Stevenson Jr.—p. 352.
Treatment Results in Major Psychoses: Report of Boston Psychopathic Hospital. J. S. Bockoven, M. Greenblatt and H. C. Solomon.—p. 357.
Caries-Producing Effect of Similar Foods Grown in Different Soil Areas. A. E. Nizel and R. S. Harris.—p. 361.
Medicine as Social Instrument: Organization of Medical Care. F. Goldmann.—p. 363.

Interstitial Myocarditis in Children.—The occurrence of interstitial myocarditis in two children, one aged 11 months and the other six weeks, is reported. In both cases endocardium and epicardium appeared to be involved in the inflammatory process, although less extensively than the myocardium. Since this has been shown by others in similar cases, a revision of the belief that endocardium and epicardium are spared in this condition is indicated. Signs of an upper respiratory infection were the outstanding symptoms in the first case and signs of a gastrointestinal disorder in the second case. There was an interval of 26 hours in the first case and four days in the second case between the onset of the symptoms of illness and death, which occurred suddenly and unexpectedly. Interstitial pneumonia was a concomitant observation in both cases. The causative agent could not be demonstrated in either case. An analysis of the features of these and similar cases cited in the literature suggests that so-called isolated myocarditis in children is, in reality, a manifestation of a more generalized disease process and that a number of factors and agents irrelevant and apparently of a mild nature per se may lead under special circumstances or in predisposed persons to severe myocardial complications.

Ohio State Medical Journal, Columbus

47:217-236 (March) 1951

- *Endemic Amebiasis. R. L. Frazier.—p. 217.
- Weil's Disease: Case Report. O. F. Rosenow and D. R. Lewis.—p. 223.
- Study of Some Clinical Aspects of Spinal Analgesia. E. B. Depp. —p. 225.
- Present-Day Practice in Obstetric Analgesia. G. J. Andros.—p. 228.
- Diagnosis of Correctable Forms of Congenital Heart Disease. H. A. Zimmerman.—p. 232.

Endemic Amebiasis.—Frazier found 568 cases of endemic amebiasis among 3,000 patients at a school for the mentally deficient in Orient, Ohio, between 1946 and 1949. The disease is apparently endemic in humans, with increased incidence in areas of poor sanitation. Heretofore, there have been no factually based estimates on its incidence in this Ohio area. The incidence of endemic amebiasis in newly admitted patients was significant. The higher incidence within the institution was caused by patients of infantile and childish levels of hygienic behavior. The disease is most frequent in patients of lower mental levels. The frequency among idiots was three times that among morons, and among imbeciles it was twice that of morons. Sex difference was pronounced, with a ratio of 10 affected males to one affected female. Early in the study, the predominant symptoms were those of diarrhea or dysentery with varying degrees of physical deterioration. Later, pallor, weight loss, and abdominal pain became signs of greater frequency. These signs were not always associated with diarrhea or dysentery. Irritability, anorexia, headache, fatigability, or emotional depression may appear to dominate the picture. Although the signs and symptoms may be characteristic, they are not pathognomonic. Diagnosis rests on identification of the organism in the stools by microscopic examination. Acute and chronic appendicitis, hemorrhage, colitis, anemia, hepatitis, cholecystitis, malnutrition, and carcinoma present problems in differential diagnosis. The mere presence of the ameba does not explain the patient's symptoms, and further diagnostic work, including therapeutic tests, is required. All cases, symptomatic or not, should be treated, since extensive pathology may occur without obvious symptoms. Three classes of drugs were used in these cases: (1) the oxyquinolines, in the form of diiodohydroxyquinolone (diodoquin®), chiniofon, or iodochlorhydroxyquin (vioform®); (2) an arsenical in the form of carbarsone, and, within certain limitations, (3) the ipecac derivative emetine hydrochloride. Improvement was usually noted in two or three days, and symptoms were controlled in a week or two. Permanent elimination of the organism often required prolonged and varied treatment. There were four deaths in 76 cases in 1946; these were diagnosed late in the course of the disease, before adequate therapy could be used. There were four deaths in the years 1947-1949. Frazier further reports that the newly developed drugs chloroquine and the thioarsenites offer promise in the therapy of endemic amebiasis.

South Carolina Medical Assn. Journal, Florence

47:91-120 (March) 1951

- Acute Infectious Laryngotracheobronchitis: Statistical Study. A. Berry. —p. 91.
- Unusual Cause of Tinnitus: Case Report. R. W. Lominack and C. J. Lemmon Jr.—p. 96.
- Use of Methyl Testosterone in Premature Infants. C. G. Castles Jr. and J. I. Waring.—p. 97.
- Surgery of Newborn. N. D. Ellis.—p. 99.
- Cancer of Larynx. R. W. Hanckel Jr.—p. 100.

Texas State Journal of Medicine, Fort Worth

47:131-208 (March) 1951

- Jaundice: I. Problem in General Surgery. H. K. Gray.—p. 135.
- Id.: II. Its Relationship to Pregnancy. C. T. Javert and R. C. Morrison. —p. 137.
- Id.: III. Pathologic Aspects. F. W. Konzelmann.—p. 142.
- Id.: IV. Distant Appraisal of Yellow Fever Vaccine Hepatitis. E. L. Stebbins.—p. 146.
- Colpocleisis. A. M. Faris and A. L. McMurrey.—p. 149.
- Treatment of Female Sterility. C. C. Boehler.—p. 151.
- Prolonged Labor: Analysis of 102 Cases at Hermann Hospital. C. A. Durham.—p. 154.
- Necropsy Authorization in Texas. L. S. Smith and M. H. Grossman. —p. 158.

U. S. Armed Forces Med. J., Washington, D. C.

2:357-540 (March) 1951. Partial Index

- Coronary Heart Disease in Midcentury with Note Concerning Its Military Importance. P. D. White.—p. 357.
- Neuropsychiatric Implications of Illiteracy. W. A. Hunt and C. L. Wittson.—p. 365.
- Recent Advances in Military Ophthalmology. V. A. Byrnes.—p. 371.
- Eosinophil as Aid in Clinical Diagnosis. J. L. Sherman Jr.—p. 383.
- Emulsion of Hexachlorocyclohexane for Scabies. S. C. Pflug.—p. 399.
- Prevention of Air Sickness by Benadryl-Scopolamine Mixtures. H. I. Chinn, B. A. Strickland, O. H. Waltrip and S. H. Gainer.—p. 401.
- Surgical Correction of Mandibular Prognathism. O. W. Wickstrom and R. F. Huebsch.—p. 405.
- Bronchogenic Carcinoma: Study of 100 Microscopically Proved Cases. R. B. Brown, L. R. Riddle and M. B. Sullivan Jr.—p. 415.
- Carcinoma in Situ of Cervix Uteri. L. G. Roth.—p. 425.
- Amebiasis with Hepatic Abscess and Pleuropulmonary Involvement. R. A. Radke.—p. 437.
- Recurrent Subluxation of Ankle Joint. K. Dunlap and E. F. Wierzalis. —p. 445.
- Management of Craniocerebral Injuries. T. H. Green.—p. 455.
- Electromyography. C. D. Shields and J. H. Kuitert.—p. 465.
- Talcum Powder Granuloma. S. J. Camarata, R. W. DuPriest, J. T. Rush and J. H. Forsee.—p. 469.
- Lipemia Retinalis. M. B. Sullivan Jr. and P. H. Pennypacker.—p. 479.
- Congenital Duodenal Atresia. W. L. Peterson and L. W. Bass.—p. 483.
- *Moth Ball Poisoning. S. M. Abelson and A. T. Henderson.—p. 491.

Moth Ball Poisoning.—A boy 2 years, 9 months old was admitted to the hospital because of anorexia and listlessness of four days' duration and frequent vomiting of two days' duration. This was followed by fever and flushing of the face. On the morning of admission he passed a quantity of port wine-colored urine, and his mother noticed pallor and a yellow tint of his skin. The tentative diagnosis was acute hemolytic anemia of Lederer. The mother stated that just prior to the onset of the child's illness she had found him playing with moth balls. The hemolytic process continued from three to seven days, during which time transfusions were necessary to replenish the rapidly hemolyzed erythrocytes. To prevent crystallization of hemoglobin in the kidney with subsequent anuria the authors kept the urine alkaline by giving 0.6 gm. of sodium bicarbonate every four hours. Since recovery was apparently complete with this therapy, a diagnosis of acute poisoning was suggested. Further observations will determine whether naphthalene poisoning is the most frequent cause of Lederer's anemia. If symptoms like the ones described here occur in a child of the "poisoning age," they should suggest naphthalene poisoning to the clinician.

Virginia Medical Monthly, Richmond

78:111-166 (March) 1951

- Recent Advances in Obstetrical Care. E. S. Groseclose.—p. 113.
- Endaural Approach for Surgery of Temporal Bone. F. D. Woodward and G. S. Fitz-Hugh.—p. 121.
- Early Functional Results in Fractures of Hip: Comparison of Types of Treatment. Preliminary Report. E. B. Carpenter, F. A. Carmines and G. S. Taylor Jr.—p. 123.
- Care of the Premature Infant in Private Practice. A. M. Edmonds, E. L. Kendig Jr. and K. Bailey.—p. 128.
- Sacro-Iliac Disarticulation (Hemipelvectomy)—Case Report. W. F. Becker.—p. 129.
- Toxicity of Antihistaminic Drugs: Case Report and Discussion. W. R. Chitwood and C. D. Moore.—p. 132.
- Pelvic Evisceration for Advanced Persistent or Recurrent Carcinoma of Cervix. A. Weinberg and J. B. Kaiser.—p. 136.
- Technique of Blood Pressure Determination in Children. W. H. Wood Jr.—p. 139.

Wisconsin Medical Journal, Madison

50:229-324 (March) 1951

- Multiple Sclerosis—Its Diagnosis and Treatment. A. B. Baker.—p. 245.
- Recent Advances in Use of BAL. E. L. Belknap.—p. 250.
- Twenty Year Analysis of Hysterectomies Performed in Rock County. T. H. Flarity and E. W. Reinardy.—p. 255.
- Advances in Treatment of Carcinoma of Cervix. M. J. Jordan.—p. 261.
- Recent Advances in Knowledge of Rickettsial Diseases. W. D. Sutliff. —p. 268.
- Ocular Manifestation of Boeck's Sarcoid: Report of Four Cases. A. G. Dunn and G. H. Anderson.—p. 279.

FOREIGN

British Journal of Dermatology, London

63:43-82 (Feb.) 1951

Endocrines in Dermatology. D. M. Dunlop.—p. 43.
Sex Hormones in Dermatology. T. N. MacGregor.—p. 52.
Case of Occupational Iron Pigmentation of Skin. P. J. Hare.—p. 63.

Hoja Tisiológica, Montevideo

10:357-426 (Dec.) 1950. **Partial Index**

*Treatment of Pulmonary Hydatid Cysts. V. Armand Ugón.—p. 369.
*Radiology After Pneumothorax. R. Racine.—p. 407.

Treatment of Hydatid Cyst of Lung.—From 1944 to 1950, Armand Ugón observed 190 cases of hydatid cyst of the lung. Treatment was surgical. In a first group of 129 patients the operation, performed by the transpleural route, consisted of enucleation of single unilocular hyalin cysts (78 cases) or removal of parasitic remains after recent rupture of the cyst (51 cases). In a second group of 55 patients with multiple hyalin cysts localized in one lobe of the lung, with vomica formation far in the past or with bronchiectatic hydatid cavities, the treatment consisted of lobectomy (41 cases), atypical pulmonary resection or cystectomy (10 cases), and pneumonectomy (four cases). In a third group of six patients puncture and drainage of the cyst were performed. In the whole group of 190 patients there were two deaths, one in the group of 10 patients who had atypical resection of the lung and one in the group of six patients who had puncture and drainage. The actual mortality rate of 2% in the whole group as compared with 20% in the last decade shows the improved prognosis for the patients, which results from advance of surgical treatment of the disease.

Radiology of Post-Pneumothorax.—Racine discusses the roentgen aspects of the lung after discontinuation of pneumothorax in 55 patients of both sexes above the age of 10. The type of pulmonary tuberculosis for which pneumothorax was established was cavitary in 36 cases and infiltrating in 19 cases. Collapse was good in 45 patients and partial in six. In four cases pneumothorax failed to collapse the diseased portion of the lung. The duration of collapse varied from less than six months to more than four years. Pneumothorax was discontinued because of clinical cure in 35 patients, pleurisy in eight, progressive pleuropulmonary adhesions in seven, contralateral pulmonary lesion in three, and abandonment of treatment by two patients. The author found that pneumothorax often produces irreversible parenchymatous or pleural lesions of the lung that are demonstrable roentgenologically. Pleural lesions include adhesions, pleurisy, and the complications of pneumolysis. Pleural lesions that are not seen by roentgen examination are visible by pleuroscopy. Pulmonary lesions are acute and diffuse in cases of diffuse pleurisy and are located at the bases of the lung only when the lesion is the result of a pleural synechia limited to the basal zone. Retraction of certain zones of the lung causes structural and morphological changes of the bronchi that are visible by bronchography. The author shows, by illustrations, the roentgen aspect of the reexpanded lung and the bronchographic changes caused by pneumothorax as he observed them in the aforementioned patients.

Medizinische Welt, Stuttgart

20:235-268 (Feb. 24) 1951. **Partial Index**

Action of Aureomycin in Internal Diseases. W. H. Hauss and B. Veit.—p. 235.
Absorption and Elimination of Paraaminosalicylic Acid (PAS) Following Inhalation. J. Vonkennel and G. Worth.—p. 238.
**Paralysis Caused by Injections. H. Glückert.*—p. 244.
Treatment of Coronary Diseases. W. Pahde.—p. 246.
*Investigation on Problem of Soot Lung and on Injurious Effects of Pure Coal Dust in Dust of Coal Mines. H. Gärtner and F. W. Brauss.—p. 253.

Paralysis Caused by Injections.—According to one estimate, injuries in connection with injections have an incidence of about one in 100,000, including abscesses, phlegmons, gas gangrene infections, and injuries to nerves. Toxicity of the injected drug or a wrong technique are responsible for the nerve injuries resulting in paralysis. Subcutaneous or intramuscular injections should never be made into the upper arm, because injury to the radial nerve is possible. Intravenous injections made into a vein in the bend of the elbow should not employ the basilic vein, because in cases of accidental paravenous injection the median and ulnar nerves are easily injured. In cases of intragluteal injection it is not only important that the injection be made in the upper external quadrant, but the direction of injection is also important, and it should never be made more than 4 or 5 cm. deep. When a nerve is injured during injection the patient may complain of a painful sensation as is experienced during electrization. Paralysis may be evident at once or may develop later. The prospects of complete recovery from paralysis are slight when the injection was made into the nerve. When the injection was made close to the nerve, large quantities of isotonic sodium chloride solution should be injected. In the milder cases of paralysis massage, electric treatment, and exercises might produce improvement. In serious injuries in which there is no sign of regeneration the nerve should be exposed, but only rarely will this be adequate to release the nerve from the constricting cicatricial tissues. If nervous conduction is completely interrupted, resection and subsequent nerve suture may be tried.

Soot Lung and Effects of Coal Dust.—Roentgenologic examinations were made on the lungs of the employees of a plant producing lampblack (soot). Two types of soot were produced in the plant in question: so-called flame soot and gas soot. Exposure to the inhalation of soot was especially great in the workers who removed the soot from the flame-soot chambers and also in the workers who produce the gas-soot and in those who pack the soot. Of 189 workers who were thoroughly investigated 13 had fully developed and 18 incipient pulmonary changes; that is, more than 16% had such changes. After commenting on the importance of the length of exposure and the appearance of the roentgenologic shadows, the authors say that the inhalation of soot may continue without harmful effects. In some of the workers, roentgenologic changes appear in the lungs after many years of exposure, but functional impairment is minimal and the workers are able to continue in their occupation, so that the term dust-lung disease is really not justified. The harmfulness of pure carbon in the form of soot, graphite, or coal dust is evaluated from reports cited in the literature. Pneumoconiosis in coal miners differs according to region; for example, the coal miners in the Ruhr region, who are exposed more to rock dusts than the miners in South Wales, have a silicosis modified by coal dust, whereas, in the mines of South Wales, the coal dust factor plays a more important part.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

95:265-332 (Jan. 27) 1951. **Partial Index**

*Lobectomy, Segmental Resection, and Pneumonectomy for Pulmonary Tuberculosis: Observations on 200 Cases. L. D. Eerland.—p. 275.
Serologic Reactions in Diagnosis of Rheumatic Diseases. S. A. den Oudsten and P. E. van Loghem-Langereis.—p. 289.

Pulmonary Resection in Tuberculosis.—Eerland describes his experiences in the course of 200 pulmonary resections that he has performed on tuberculous patients since May 1943. This number included 111 pneumonectomies, 73 lobectomies, and 16 segmental resections. There were 110 men and 90 women. Resection may prove difficult in extremely obese patients, in patients who have been sick for years, and in those who also have extrapulmonary tuberculosis. This last factor is not a definite contraindication but makes caution essential. Resection may be technically difficult in patients who have undergone other collapse operations, particularly extrapleural pneumothorax or thoracoplasty. While the patient is being prepared for pulmonary resection, breathing exercises should be employed, and the patient should learn to control the thoracic as well as the abdominal respiration. Administration of the B complex vitamins and vitamin C is also advisable. Streptomycin is given from seven to 10 days before and may be continued for three or four weeks after the operation. Paraaminosalicylic acid is also of great value; it may be continued for from six to eight weeks after the operation. The postoperative mortality rate was 4.5%. The death of nine patients was connected with the operation; four died later. The sputum had become negative in 172

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

of the 187 patients who were still alive on Oct. 1, 1950. Of the 187 patients, the prognosis was definitely unfavorable in four, and 70 were still in the sanatorium. Of the 117 who had been discharged, 104 had resumed their occupations.

Nordisk Medicin, Stockholm

45:41-80 (Jan. 10) 1951. Partial Index

•What Is Mental Hygiene? J. W. Smitt.—p. 41.
Life Span of Erythrocytes Estimated by Differential Agglutination. K. Aas.—p. 45.
Roentgenologic Measurement of Pelvic Outlet. J. Asplund and S. Ydén.—p. 48.
Dupuytren's Contracture with Report on Familial Occurrence. C. L. Laane.—p. 52.
Primary Ovarian Cancer as Complication in Pregnancy and Delivery. R. Feniger.—p. 61.

What Is Mental Hygiene?—Smitt outlines some of the main features of the concept of mental health. The aim of the mental health movement, he says, is to help the individual to live harmoniously with his fellow men. The cultural patterns in large parts of the world will have to be modified. More considerate upbringing of children and kinder treatment of adults would probably decrease some biosocial problems, such as maladjustment of children, psychosomatic diseases, psychoses, neuroses, alcoholism and criminality. The medical profession, to be adequate and up-to-date, must enter into biopsychosocial preventive work. The evolution of medicine in the direction of prevention is indicated by the establishment of the World Health Organization and the World Federation for Mental Health.

Philippine Journal of Surgery, Manila

5:95-136 (May-June) 1950. Partial Index

•Relief of Pain by Prefrontal Lobotomy: Report of Four Cases. M. M. Javier and E. Lucas.—p. 95.
Herniated Lumbar Nucleus Pulposus: Its Diagnosis and Surgical Management. R. H. Gustilo and A. E. Walker.—p. 99.
Reoperations After Appendectomies. F. Guzman and V. Nañagas.—p. 115.
Why and How Early During Childhood Should Squinters be Operated on? G. de Ocampo.—p. 118.

Prefrontal Lobotomy for Relief of Pain.—Javier and Lucas feel that when pain is accompanied by fear or anxiety or when it is followed by panicky conduct due to remembrance of previous racking experiences, then the patient is a good subject for lobotomy. Previous experiences with lobotomy suggest that the more posterior lobotomies are most effective in psychotic patients, whereas more anterior ablations are more advantageous for the treatment of intractable pain, because the resultant personality changes are less. The authors describe a modification in which the cut is made closer to the extreme frontal pole of the cortex. Their procedure is intermediate between the closed method of Freeman and Watts and the open technique of Lyerly, Poppen, Penfield, and others. The treatment was used in four patients with intractable pain from metastatic carcinoma, and it relieved pain and mental suffering without causing personality changes. The authors regard it as the operation of choice for relief of intractable pain and the associated mental suffering.

Rassegna Medica Sarda, Cagliari

52:487-730 (Sept.-Dec.) 1950. Partial Index

Comparative Study of Some Colloidal Lability Tests with Special Reference to Hepatic Function. D. Casula and O. Boi.—p. 487.
Meningioma of Clivus Producing a Syndrome of Lateral Amyotrophic Sclerosis: Clinical and Anatomic Study. G. M. Uccheddu.—p. 529.
Hard Alveolar Carcinoma of Renal Pelvis. F. Santa Cruz and T. Lisai.—p. 549.
•Central and Peripheral Hematological Picture in Normal and Pathological Subjects Treated with High Doses of Synthetic Chloramphenicol. G. Binaghi, U. Carcassi and C. Pirastu.—p. 563.
Calcified Splenic Hydatid Cyst. F. Santa Cruz.—p. 578.

Effect of Chloramphenicol on Hematological Picture.—The authors direct attention to the conflicting opinions in the literature on the toxicity or lack of toxicity of synthetic chloramphenicol on the blood and the blood-forming tissues. They studied the behavior of the myelogram, and they performed studies of the peripheral blood of two patients with brucellosis and two normal persons 24 hours before administration of chloramphenicol and 24 hours after completion of treatment. The drug was given orally, the racemic form to patients and the levorotatory form to normal persons, in a total dose varying between 45 and 53 gm. of the racemic drug, in nine and 12 consecutive days respectively, and in a total dose of 25 gm. of the levorotatory form in five consecutive days. The results showed that chloramphenicol, in either the racemic or the levorotatory form, has no toxic action on the blood and blood-forming tissues, contrary to previous reports in the literature of a few cases, which were probably due to infection in patients with constitutional lability of the blood.

South African Medical Journal, Cape Town

25:37-52 (Jan. 20) 1951. Partial Index

•Postcricoid Pharyngo-Oesophageal Perforation Due to Endoscopy. L. Knox—p. 37.
Bilharziasis in the Transvaal: Its Diagnosis and Incidence. R. L. van Wezel.—p. 44.

Pharyngoesophageal Perforation in Endoscopy.—While perforation of the esophagus after endoscopy has long been recognized as a danger, particularly where there is a lesion such as a carcinoma or a stricture, it is only in recent years that attention has been drawn to perforation occurring in a healthy esophagus in the postcricoid area, i. e., at the pharyngoesophageal junction. A total of 17 postcricoid perforations following gastroscopy have been recorded. In the past most of these patients were treated expectantly. Of the 17 patients, 10 died. Goligher was the first to recommend urgent exploration of the pharyngoesophageal area, with immediate suturing of any tear, as soon as surgical emphysema is noted in the neck after endoscopy. A patient in whom Goligher did this made a satisfactory recovery. Knox here reports a case that leads him to give emphatic support to Goligher. Delay in operation led to an increase in the friability of the esophageal wall, with a consequent cutting through of the stitches. Failure to operate when surgical emphysema was noted was an error, since the degree and the rapid development of the emphysema should have indicated that the laceration was not small and therefore not likely to seal spontaneously. A delay of five months in the hope that natural closure of the fistula would occur achieved nothing but discomfort for the patient.

Ugeskrift for Laeger, Copenhagen

113:199-222 (Feb. 15) 1951. Partial Index

•Comparative Investigations on Galli Mainini and Friedman Pregnancy Reactions. J. V. Thorborg.—p. 199.
•Clinical Experiences with Mainini Test. Bufo Pregnancy Reaction. C. F. Felding.—p. 203.
Leukemia in Children in Denmark 1942-1949. P. E. Andersen.—p. 205.

Comparative Investigations on Galli Mainini and Friedman Pregnancy Reactions.—Comparing Galli Mainini's pregnancy reaction in the common toad (the bufo reaction) with Friedman's pregnancy reaction in 1,042 cases, Thorborg found that the bufo reaction was slightly less sensitive than the Friedman test, but that all positive bufo reactions were correct. A positive bufo reaction is considered as certain as a positive Friedman reaction, or possibly more certain, but a negative Friedman reaction must be regarded as more certain than a negative bufo reaction. The Friedman reaction is to be preferred in cases in which a moderate gonadotropin excretion may be expected, i. e., at a very early stage of pregnancy, in the last half of pregnancy, and in extrauterine pregnancy. The advantages of the bufo test are its speed (about 24 hours as against 40 or 48 hours for the Friedman test), its inexpensiveness and simplicity, and the small space required for storing the toads.

Clinical Experiences with Mainini and Bufo Pregnancy Tests.—Felding says that with due regard to its field of application, which on the basis of two years' experience he sets at about six weeks after the last normal menstruation for the lowest limit and four months' pregnancy for the upper limit, the bufo reaction proved reliable in 250 positive reactions. A positive reaction has always proved to be correct. The bufo test is less sensitive than the Friedman reaction and should be supplemented by it if the result is negative and there is reason to suspect extrauterine pregnancy, very early pregnancy, or far advanced pregnancy. Its advantage over other more sensitive tests is that the reaction to it more quickly becomes negative in incomplete abortion and probably also in missed abortion. It is readily performed and inexpensive.

BOOK REVIEWS

The Neurosurgical Treatment of Traumatic Paraplegia. By J. Lawrence Pool, M.D., Professor of Neurological Surgery, College of Physicians and Surgeons, Columbia University, New York. Publication number 83, American Lecture Series, monograph in American Lectures in Surgery, edited by Michael E. DeBakey, M.D., Professor of Surgery, Chairman, Department of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Kentucky. Division of Neurosurgery, editor: Barnes Woodhall, M.D. Cloth. $3. Pp. 107, with 24 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

Before World War II, patients who suffered a complete transection of the spinal cord rarely survived for more than a few weeks. Few patients who had suffered this type of injury recovered sufficiently to become even partially rehabilitated. Deaths resulted from infected decubitus ulcers, infections of the urinary tract, or respiratory complications. Only two or three hospitals had the trained personnel, the equipment, and the financial resources necessary for the tedious task of rehabilitating patients who were paralyzed because of spinal cord injuries. The paraplegic was indeed the "forgotten man."

During and since World War II, lessons learned and taught by Deaver, Rusk, Munro, Pool, and their colleagues have been used to develop other paraplegic rehabilitation centers. Several of the best of these are to be found in Veteran's Administration hospitals.

In this excellent monograph, Dr. Pool has briefly reviewed the history of paraplegia, its etiology and pathology, and in a very clear and concise manner has discussed diagnosis and treatment. Treatment, as outlined by Dr. Pool, begins with the place *and time of injury to the patient and is carried through a recommended* program of rehabilitation. All who treat traumatic paraplegia should have a copy of this splendid little book.

Personnel Administration in Public Health Nursing. By William Brody, Director of Personnel, New York City Department of Health. Cloth. $3.25. Pp. 209, with 12 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1951.

With expanded public health programs either contemplated or already under way, an increase in public health nursing personnel can be expected. More emphasis will necessarily be directed toward sound principles of personnel management in dealing with this particular group. This volume stresses that personnel administration as an applied science can contribute as much to health administration as it has to other public and private, social and industrial services. Specific attention is directed toward those aspects of employment that are unique to a social and educational field like public health nursing. The author emphasizes that the person must be allowed the fullest possible personal and professional growth with stimulation and adequate appreciation of creativeness, special skills, and knowledge. Furthermore, individual personal differences in emotions, attitudes, and habits must be taken into account.

Such subjects are discussed as types of service and methods of recruitment, selection, and service evaluation. The importance of inservice training and working conditions, which involve salary, leaves of absence, promotion, resignation, retirement, and dismissal, are considered briefly.

This volume should serve to stimulate progressive thought and action in personnel administration in public health nursing. While it affords only a brief discussion of the many complex aspects of the field, it tends to emphasize those points which are most obviously vital to efficient administration. The volume is directed toward public health nursing practitioners and students and to all those associated with public health nursing in an administrative capacity. It should be of academic and practical interest to these groups.

Heart Disease: Its Diagnosis and Treatment. By Emanuel Goldberger, B.S., M.D., Associate Attending Physician, Montefiore Hospital, New York. Cloth. $10. Pp. 651, with 90 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

When a new book on heart disease is published, one may well ask why there is need for any more books on the subject in view of the plentiful supply of such treatises. It was with this point of view that this book was analyzed. In its favor is the fact that it is complete in its scope; its bibliography is up-to-date, and some of the illustrations and tables are very informative, particularly those on fluoroscopy and electrocardiography. Furthermore, this book attempts to integrate into a pleasing whole the old traditional viewpoint of cardiovascular disease with the more modern methodologies which have sprung up recently, and in this effort, excellent coordination is achieved. The format is pleasing, although it might have been better not to have so many subheadings, and it might have been advisable to avoid having so many cross references (with page number) within the text. The text is also uneven, at times being somewhat like a compend and at other times being rather lengthy and involved. It is, therefore, an uneven presentation, and sometimes one has the feeling that there is not that maturity of judgment that is expected in a textbook on an important subject such as heart disease. Of course, there are many isolated items in the text with which one cannot agree; some of these are matters of personal judgment, but some of them are serious content errors. One gets the feeling that the author has read the literature extensively and has summarized a great deal of this in some areas without the benefit of a large amount of personal experience.

The author starts out in the first section with the normal heart, methods of physical examination, and the special methods of laboratory examination. In the second section he presents the abnormal heart, its symptoms and signs, and the roentgenographic, electrocardiographic, and other circulatory examinations. In the third section, he deals with cardiac syndromes like congestive heart failure, shock, syncope, the anginal syndrome, neurocirculatory asthenia, and the cardiac arrhythmias. In the fourth section, there is a systematic description of the cardiac abnormalities, with congenital heart disease as the starting point. This is followed by myocarditis, rheumatic fever, rheumatic heart disease, bacterial endocarditis, syphilitic and hypertensive heart disease, coronary heart disease, cor pulmonale, diseases of the pericardium and of the blood vessels, the heart in endocrine disorders, tumors of the heart, and trauma. In the last section, he deals with such things as pregnancy, surgery, and employment. The scope of the book is ambitious, and if the author has not always come up to expectations, this should not deter from the fact that the reader will find this book of value as a reference source of the present state of knowledge.

Organized Health Services in a Rural County. By Milton I. Roemer and Ethel A. Wilson. [This study was conducted as a cooperative research project between Monogalia County (West Virginia) Health Department and U. S. Public Health Service, States Relations Division.] Paper. Pp. *144. Washington, D. C., 1951.*

This is a mimeographed brochure of considerable length and detail, dealing with the study of organized health services in Monongalia County, West Virginia. This study was conducted as a cooperative research project between the county health department and the United States Public Health Service, with participation of West Virginia University departments of medicine, sociology, and social work. It should be of interest as a pattern for those interested in making similar studies or participating therein. There is nothing in the brochure or in the accompanying information to indicate whether it is available outside the state and, if so, the price. Presumably the county health department or the States Relations Division of the Public Health Service would answer inquiries from interested persons.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

History of Pharmacy: A Guide and a Survey. By Edward Kremers, Ph.G., Ph.M., Ph.D., Sc.D., and George Urdang, Ph.G., D.Sc., Nat., Sc.D., Professor of History of Pharmacy, University of Wisconsin, Madison. Second edition. Cloth. $7.50. Pp. 622, with illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1951.

This book is a completely revised and enlarged edition. It retains the approach characteristic of the original edition, which presents facts and events as part of an integrated picture of the development of pharmacy rather than the chronologic narration of historical details. While emphasis is placed on the history of American pharmacy and the contribution of its disciples, a significant portion of the book is devoted to the development of pharmacy on the Continent and international pharmaceutical trends.

The volume is divided into four parts. The first part is devoted to the background of pharmacy in earlier civilization and its transition from ancient times through the Middle Ages. The birth of professional pharmacy in Europe and its development in the leading countries on the Continent comprise the second major portion of the book. Part three records the history of pharmacy in the United States. It is divided into two sections: the development of pharmaceutical practice from colonial times through the period of westward expansion, and an outline of the growth of associations, the rise of legislative regulation, the development of education, the literature, and the economic structure of American pharmacy. Part four highlights the discoveries, inventions, and other contributions to society by pharmacists. A bibliography, chronology, glossary, and an index of one hundred fourteen pages complete the remaining portion of this volume.

The full significance and value of this book is perhaps best stated in the concluding sentence of the text: "If we do not wish to lose the great men of and deeds that emerge from pharmacy, we must cultivate the ground from which they spring." The authors of the "History of Pharmacy" should take pride in the knowledge that they have not only enriched the literature of pharmacy but have provided a book which should be a source of inspiration to all who have espoused this old and honored profession.

Blood Groups in Man. By R. R. Race, Ph.D., M. R. C. S., Director, Medical Research Council Blood Group Research Unit, Lister Institute, London, and Ruth Sanger, Ph. D., B.Sc. With foreword by Professor R. A. Fisher, F.R.S. Cloth. $6.50. Pp. 290. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This book contains an up-to-date, authoritative discussion of blood groups and their inheritance. In addition to ABO groups, the newer blood groups such as MN, P, Rh, Lutheran, Kell, Lewis, and Duffy are reviewed, and methods for identification of blood group antibodies are described. The significance of blood groups in hemolytic diseases and blood transfusions, and the contributions of blood group investigations to problems of parentage and identity are reported. The discussion is supplemented with numerous tables and charts. Each chapter concludes with a list of references, and both an authors' index and a subject index are included at the end of the book. This volume should be a useful reference for physicians, geneticists, anthropologists, members of the legal profession, and all others interested in blood group research and its practical application.

Somatic and Psychiatric Treatment of Asthma. Edited by Harold A. Abramson, M.D., Associate Physician and Chief, Allergy Clinic, Mount Sinai Hospital, New York. Cloth. $11. Pp. 751, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

This is a rather exhaustive treatise on the treatment of asthma, with special consideration given to psychiatric management. The book consists of six parts. Part one deals with basic concepts, and here the chapters on the physiology and psychodynamics of respiration and air flow in asthma are especially valuable. Part two concerns general methods of testing and treatment. Peshkin's chapter on "Critical Evaluation of Diagnostic Tests for Sensitization" is a complete and noteworthy contribution. Part three includes a discussion of inhalant allergens and their use in specific therapy. Part four deals with somatic therapy. This chapter contains contributions by many authors, and there is much overlapping and repetition of discussions. One may well question the wisdom of having separate chapters on intravenous treatment, antihistamines, inhalation of gases, aerosol therapy, and experimental production of asthma with aerosols in man. Part five is a discussion of psychotherapy. On the whole, the psychosomatic approach in this phase of therapy is dealt with in a common sense manner, although one may find it difficult to accept the emphasis given to the concept of maternal rejection. Part six deals briefly with some aspects of asthma therapy in Latin America. This part seems superfluous: the necessary botanical material could have been included in a paragraph or two in another portion of the book.

This book has all the faults that can occur in a compilation by a large group of authors. Overlapping discussions and multiple haphazard division of subjects naturally result in "padding." Quality is distinctly uneven. There are scholarly chapters representing material never found before in complete form in a textbook. On the other hand, there are also chapters so dogmatic and elementary that they seem not to fit in with other portions of the book. This volume will be valuable to the allergist and physiologist, and it will serve internists because of the special features that it contains. However, it is not the type of textbook that can be recommended particularly for the embryo allergist, the medical student, or the average practitioner who is as yet inexperienced in allergy.

The Doctor: His Career, His Business, His Human Relations. By Stanley R. Truman, M.D. Cloth. $3. Pp. 151, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

The medical student, the recent graduate, and the mature physician will each find much of interest and value in this book. It is written from the standpoint of a general practitioner of broad experience and of a thoughtful student of many of the problems that impinge on medicine today. It offers excellent advice and guidance to the young physician about to enter practice on such practical matters as location, selection, and equipment of an office and the various procedures necessary to establish oneself in a community. It goes further and instructs him on how to adjust himself to his colleagues, to organized medicine, to his patients, and to society as a whole.

The discussion of many of the problems of medicine are brief and often didactic, since they merely express the author's views on a number of highly debatable subjects. Certain of these problems are oversimplified, but their presentation should serve to stimulate the physician to further inquiry and to arouse in him a feeling of responsibility for aiding in their solution.

Of especial value are the last three chapters dealing with the relation of the physician to his colleagues, to the public, and to his patients. The thread of idealism that runs through these chapters is properly balanced by a sense of reality. They are worthy of the thoughtful consideration of every physician interested in the enduring progress of medicine.

Paracelsus: Magic Into Science. By Henry M. Pachter. Cloth. $4. Pp. 360, with 12 illustrations. Henry Schuman, Inc., 20 E. 70th St., New York 21, 1951.

This book portrays in easily readable fashion the true history of the life, adventures, beliefs, and prophecies of a man who can be considered the founder not only of biochemistry and chemotherapy, but of experimental science itself. At the time of Paracelsus, chemistry was a technique rather than a science, but largely because of his efforts this craft won recognition among the sciences. In fact, he was the first to use the word "chemist," and the first to classify chemical substances.

In his search for truth and knowledge, Paracelsus traveled far and wide in a troubled world, disagreeing with the medieval folk-medicines and cures and refusing to believe patients doomed merely because the books did not prescribe a treatment. From his many travels, he brought home experiences that became the foundation of his doctrines in medicine and chemistry.

The fact that Paracelsus lived in the age of the Renaissance and the Reformation might explain his development of a philosophy that was to become the instrument of a radical departure from the conservative view.

Dr. Pachter's well-illustrated novel contains a wealth of historical facts interwoven with the biography of Paracelsus, making it extremely worth-while reading.

QUERIES AND MINOR NOTES

ATHEROSCLEROSIS AND ARTERIOSCLEROSIS

To the Editor:—*Please explain the difference between atherosclerosis and arteriosclerosis.* *M.D., Florida.*

Answer.—Atherosclerosis, so named in 1906, is the most important chronic arterial disease. It is responsible for at least 90 per cent of coronary artery disease, for example. It is almost exclusively a disease of man among mammals. It occurs in birds, notably in chickens fed for market. In these animals it is dominant in the male, as is true in man. It is a specific focal disease which arises in selective sites in the arterial system, where scavenger cells, macrophages carrying excess crystalline esters of cholesterol, invade the arterial intima in waves. The esters of cholesterol are irritant and slowly stimulate the growth of connective tissue. Intermittent waves of invading cholesterophages in time produce fibrous thickening of the intima and narrowing of the arterial lumen. These conditions in the coronary arteries favor thrombosis or insufficiency of the vessels. Calcification is a terminal deposit in necrotic lesions. Reproduction of human lesions follows feeding of cholesterol in rabbits or chickens and feeding of cholesterol and thiouracil in dogs.

Arteriosclerosis is the older term (1830) applied to the common chronic arterial disease, especially of the aorta, when we knew little about arterial disease. As used today it is all-inclusive, embracing atherosclerosis, Monckeberg's sclerosis and diffuse arterial changes, such as dilatation, tortuosity, thinning or thickening, which are probably due to wear and tear and age, particularly in an already diseased vessel. Monckeberg's sclerosis is a primary necrosis of the media in peripheral arteries, in rings or continuously, with fixation of the vessel, by calcification or ossification, in the dilated position. Narrowing of the lumen, when it occurs, is due to engrafted atherosclerosis.

MULTIPLE SCLEROSIS

To the Editor:—*A 34 year old married woman had her first attack of multiple sclerosis in March 1949, with peripheral sensory derangement involving one arm, mild ataxia and exaggeration of most reflexes lasting about four weeks. A remission of subjective symptoms lasted one year; then she had a severer attack, with general cutaneous hyperesthesia, ataxia, nystagmus with diplopia, severe headache and bladder retention lasting six to eight weeks. She has had a less complete remission since this last attack and has been able to attend to most of her household duties. Many of the objective neurological findings have persisted. Bladder function is normal. Can a similar exacerbation be predicted? Is there any new therapy?* *L. M. Lide, M.D., Florence, S. C.*

Answer.—It is characteristic of multiple sclerosis that the possibility of exacerbations cannot be predicted in any specific way. Some workers believe that alterations in capillary fragility occur before an exacerbation is clinically detectable. This does not, however, have universal acceptance.

No statistically valid seasonal variations are known to exist. However, this statement must be qualified with the observation that unusual climatologic stress may precipitate reactivity of the disease in the way that other stresses, such as pregnancy, infection and emotional disturbances, have been observed to antedate exacerbations.

There is no new therapeutic regimen for multiple sclerosis. It is considered that supportive measures, such as adequate nutrition with vitamin supplements, appropriate patterns of rest and exercise and dynamic psychotherapy, all play an important role in enabling the patient to withstand the rigors of the disease.

THROMBOPHLEBITIS

To the Editor:—*A patient had thrombophlebitis of the homolateral extremity following herniorraphy. This became chronic with recurrent acute exacerbations. Seven years later thrombophlebitis of the opposite lower extremity developed. Six years later repeated pulmonary infarctions occurred, despite anticoagulation therapy and bilateral femoral ligations. Eventually the patient submitted to ligation of the inferior vena cava. At operation involvement of both iliac veins was observed. In such a situation, is it possible that the iliac veins and veins of the second extremity were involved in that order from the original source?*

Elmer A. Kleefield, M.D., Forest Hills, N. Y.

Answer.—The history as outlined is typical of a progressive thromboembolic disease that originated with postoperative thrombosis. The original level of this thrombosis may have been in the foot or calf muscles of the affected extremity or in the pelvis. The prolonged progressive course may be due to several factors. The patient himself may have had a tendency to clot; this thrombophilia seems to be familial. Once a thrombosis develops, the circulatory stasis that it produces is an additional factor in the production of ascending or descending thrombosis. The clot itself has a propagating quality. Other factors that help to reactivate a latent thromboembolic disease are trauma to the affected extremity, inadequate elastic support and continued smoking.

Therapeutic measures have a great deal to do with persistence of thromboembolic disease. Insufficient anticoagulant therapy, either with heparin or bishydroxycoumarin prolongs the disease and may increase the clotting tendency. Anticoagulant therapy in acute thrombosis must be intensive. Token doses are worse than no therapy at all. When vein ligations are done, they must be above the level of the thrombus; superficial femoral ligations are useful only when the clot is still below the knee. When they are done in the presence of iliac thromboses or phlebitis of periprostatic, perirectal or perivesical origin, they may even stir up a latent periphlebitic process.

Vena cava ligation was the method of choice in this case, since all other methods failed. Even so, patches of periphlebitis may occur on both lower extremities unless the patient's thromboembolic disease has been eradicated.

SEVERE DRYNESS OF MOUTH

To the Editor:—*A 59 year old woman complains of dryness of the mouth and pharynx of 17 months' duration. This is so pronounced that she finds it difficult to swallow food. She had infected teeth, blood pressure of 260/140 and urine with specific gravity of 1010, with fluid restriction. The tongue and mucous membranes were so dry that the tongue depressor stuck to them as if glued. Otherwise the results of physical examination were normal. After extraction of the teeth she felt better, but her mouth did not change. Her blood pressure dropped to 140/110, and the specific gravity of the urine would occasionally be as high as 1016. Her nonprotein nitrogen is 32 and sedimentation rate 25 mm. Have you any suggestions?*

Charles A. Rose, M.D., Hornell, N. Y.

Answer.—The Jacksons (Diseases of the Nose, Throat, and Ear, Philadelphia and London, W. B. Saunders Company, 1945, p. 145) in discussing Mikulicz's disease mention dryness of the mouth and the conjunctiva which may be due to the replacement of secretory tissue by an infiltration of lymphatic cells. In xerostomia, others mention the role of dehydration following diarrheas (typhoid, cholera) and severe febrile diseases. Chronic kidney disease and epidemic parotitis are implicated, as is the use of belladonna and its derivatives and opium. Dryness following roentgen treatment of facial structures is well known. Diabetes mellitus and insipidus are included

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

as causes of xerostomia. One author mentions its occurrence in elderly women, in whom it is said to follow mental shock. The sense of taste is said to be lost, and speaking and swallowing are difficult. Because of dehydration, the tongue resembles crocodile skin (The Merck Manual, ed. 8, Rahway, N.J., Merck & Co., Inc., 1950, pp. 309-310).

Some of the loosely described symptoms given above may really belong to what is more recently described as Sjögren's syndrome, a complex characterized by dryness of the conjunctiva, mouth, nose, pharynx, trachea and bronchi. Gastric and vaginal secretion may be minimal. Depending on the location, and possibly owing to the action of some secretoinhibitor mechanism, there are symptoms divisible into ophthalmic, oropharyngeal and a so-called classic type, in which the chief complaints are swelling of the salivary glands, fever, and gastrointestinal complaints.

Cooperman (Cooperman, H. O.: *Ann. West. Med. & Surg.* 4:344, 1950) suggests that the cause may be too little acetylcholine or too much cholinesterase at the end organ. He suggests the use of diethylstilbestrol and methyltestosterone, because of the possible relation of the complaints to the menopause, and pilocarpine, because of its cholinergic character. Glycerin mouth washes are said to be helpful; nasal obstruction should be treated to minimize mouth breathing and lost teeth replaced by well fitting dentures to help avoid respirational dryness.

HOT FLASHES IN A MAN

To the Editor:—*For the past year I get "hot flashes" affecting the upper part of the body and face, lasting a few minutes and concluding with perspiration of the back and the axillas. These "flashes" usually occur several times a day with free intervals of several weeks or months; they occur at any time of the day but, as a rule, in a hot room, and there is a general intolerance to heat. Otherwise I feel well but tired. My blood pressure is 150/105 mm. Hg. Eighteen months ago I had homologous serum hepatitis, and the cephalin flocculation test was still 2 + a few months ago. I have taken vitamin B complex in the usual dosage on and off for the last 18 months. The hepatitis was due to a blood transfusion I had received three months previously. Could the flashes be due to disturbed heat metabolism of the liver or to the vitamin B? Could the flashes be due to the "male climacterium?" I am 52 years old. Is there any treatment for this condition?*

M.D., New Jersey.

Answer.—The hot flashes which you describe probably do not bear any relation to liver function or to the administration of vitamin B. The possibility of the male climacteric should be considered, although this condition usually does not develop until after the age of 52. A therapeutic trial of androgen might be made, with intramuscular testosterone propionate injections, 50.0 mg. three times a week. If the hot flashes are caused by the male climacteric, they will disappear with this form of treatment.

TINGLING OF SOLES OF FEET

To the Editor:—*A man, 60, smokes two packages of cigarets a day. His dorsalis pedis artery pulsation is very good but he complains of burning and tingling of the bottoms of both feet which wakes him up at night. He obtains relief only by soaking his feet in cold water. His blood pressure is normal, and he has no cardiac symptoms or dropsy; the color of his feet is good. What can be done to relieve this patient?*

Aurbey L. Lewis, M.D., San Angelo, Texas.

Answer.—This patient's symptoms are suggestive of erythromelalgia, since the heat, burning, and tingling are relieved by cold water. Such a lesion may be on a vascular, a neurologic, or a purely functional basis.

Nothing has been said about the presence or absence of the posterior tibial pulse; this should be palpated and its pulsation or absence of pulsation noted. If the patient has no reflexes, particularly no achilles tendon reflexes, a complete neurological examination, including a spinal puncture, is important. It would be also necessary to exclude polycythemia, this being a frequent cause of erythromelalgia. X-rays should be taken of both feet, possibly on one film, and the presence or absence of osteoporosis noted. Cord lesions and even arteriosclerotic ischemia of the cord might produce the symptoms described.

Generally speaking, this man should have a complete examination and his neurovascular status evaluated; if nothing is found, large doses of thiamine hydrochloride and vitamin B_{12} might be administered for symptomatic relief.

BEAUTY SHOP OPERATORS

To the Editor:—*A beauty shop operator has been complaining for months of "tingling and bursting" in her fingers; at times they become numb. She is 55, shows pronounced nervousness and is otherwise normal. She has been taking small doses of thyroid extract for some time, because of a mildly abnormal basal metabolic rate. Hot water, massage, and moving the digits relieves the symptoms somewhat. Placing them in cold water does not precipitate the spell. There is no obvious discoloration. The patient seems to think that some cold wave permanent preparations may be responsible, especially since her right hand is affected primarily. I would appreciate your opinion.*

I. Alan Ulert, M.D., Houston, Texas.

This inquiry was referred to two authorities, whose respective replies follow.—Ed.

Answer.—Numbness and tingling of fingers in a 55 year old nervous woman is not uncommon. It is doubtful that such symptoms could have been connected with the use of ammonium thioglycolate. Detailed studies of the circulation, including a finger plethysmogram and capillary microscopic study, together with a study of sensory and vibratory sense could rule out a purely functional disturbance. "Bursting" pain is often aggravated by heat and relieved by cold, it is one of the symptoms of erythromelalgia and may be present without color changes.

Answer.—A review of the literature on cold wave preparations does not indicate that they have been proved responsible for "tingling and bursting" in the fingers. The only unfavorable reactions that have definitely been established as caused by cold waving preparations are sensitizations and irritations, and these occur very infrequently.

Beauty shop operators are more likely to suffer reactions than the occasional user of a home permanent. It is urged by all investigators that beauty shop operators wear gloves in handling these solutions, inasmuch as a severe incapacitating dermatitis can result if sensitization does develop.

Following is a summarizing statement of a report of the Committee on Cosmetics by Dr. A. J. Lehman (*J. A. M. A.*, **141**:844 [Nov. 19] 1949).

> The number of cold waves given each year employing salts of thioglycolic acid can no doubt be estimated in the millions. The number of complaints in comparison with the total number of applications is small. From rigorous laboratory evaluation of the hazards involved, it may be stated that the judicious use of ammonium thioglycolate as a hair-waving preparation should prove a relatively innocuous procedure. The majority of complaints from patrons and operators are probably due to the misuse of the product because of failure to heed directions or precautions. Allergic responses to the thioglycolates appear to have occurred only rarely. Allowance must also be made for allergic responses to the other ingredients, such as wetting agents and perfumes.
>
> It is believed that protection for the hands is essential in the case of operators or persons who have occasion to be exposed daily to varying amounts of the waving solution.

SPIDER NEVI

To the Editor:—*What can be done for the spiderweb-like veins, telangiectasis, I believe they are called, on the thighs of a healthy girl of 20?*

M.D., Florida.

Answer.—Spider nevi are small pinpoint-sized to pinhead-sized red spots with fine, weblike projections, which radiate from the center and are often associated with hepatic disease. They may show pulsation. Cutaneous spiderbursts, however, consist of a delicate network of fine venules, which have a central pool and frequently appear on the thighs of young women. Many more develop at a later date, especially during menopause. While an individual burst may be injected centrally with a drop or two of a sclerosing solution or touched with a fine electric cautery, the cosmetic effect is always doubtful and, of course, the appearance of new lesions is not prevented. Since the bursts are harmless and cause nothing but anxiety on cosmetic grounds, reassurance and covering powders or pastes are sufficient.

REHABILITATION OF THE APHASIC PATIENT

To the Editor:—*I would appreciate information regarding methods of rehabilitation of aphasias secondary to cerebral accidents. Some of these patients are unable to write because of residual involvement of the arms and hands.*

M. A. Gold, M.D., Butte, Mont.

Answer.—In evaluation of the aphasic patient for rehabilitation, the specific area of language disturbance (reading, writing, speaking) must first be determined. An aphasic is usually one of four types: (1) expressive, (2) receptive, (3) expressive-receptive, or (4) global (e. g., has complete losses in all language phases). The prognosis for retraining in language depends primarily on (1) age, (2) duration of aphasic symptoms, (3) motivation of the patient, and (4) his emotional status. The "expressive type" aphasic has the best prognosis for language therapy.

The methods employed in retraining all types of aphasics are similar to those used in language teaching for young children and in teaching the deaf. The materials used, although elementary, are adapted to adult interests. For the right hemiplegic, left-handed writing is taught concurrently with reading and speaking. The procedures in retraining an "expressive type" aphasic include: (1) utilizing all residual automatic speech, such as numbers, days, and other units which contain logical series; small successes are highly encouraging to the patient; (2) with the use of groups of pictures of objects (clothing, food), the patient is taught to write, read, and say the names of concrete, everyday objects; (3) teaching the patient to handle everyday language situations (e. g., writing letters, adding bills).

Joseph Wepman's "Recovery from Aphasia" (New York, Ronald Press, 1951) is recommended as an easy-to-read, comprehensive account of rehabilitation processes for the aphasic patient.

LEG PAINS IN CHILDREN

To the Editor:—*In the excellent discussion on "Leg Pains in Children," which appeared in Queries and Minor Notes, April 28, 1951, I should like to add that it is well to consider a functional origin. I recently examined two girls of different families, 3 and 6 years of age, in whom the complaint of leg pain at night appeared to be an attention-gaining mechanism. The physical examination in each instance, including postural appraisal, was quite negative. In both cases there was an unusual degree of reciprocal attachment between mother and child, as well as an interloper in the shape of a younger brother. One of the patients, the 3 year old, relapsed into bed-wetting after the arrival of the baby. The mother of each of these girls was in the habit of leaving her own bed at night in order to comfort the child. The patients have been treated solely along functional lines, one with great improvement, the other with apparent cure.*

I believe that a postural explanation for pain of this type should be consigned to the same attic where "growing pains" now rest in deserved oblivion. "Proper" posture is a dogmatic, not a normative, concept; hence postural flaws may be detected in almost any human, adult or child. We know by practical experience that "poor" posture can be decidedly symptomatic—at any rate the aching back and the sore knee become well after postural correction—but the symptoms are quite different from those mentioned above.

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To the Editor:—*Whoever answered the question on "Leg Pains in Children" in* The Journal, *April 28, page 1393, was somewhat distracted when he read it. Possibly he was making out his income tax. I will try to give what I think is a better answer.*

Otherwise healthy and normal children who complain of severe pains in the legs do so, in most cases, because overfatigued muscles in the legs are cramping. Such fatigue and cramping may be due to simple hyperactivity, or it may be due to faulty foot mechanics and most frequently to congenitally short heel tendons. Pain in the pretibial area is most frequently caused by fatigue and spasm in the anterior tibial muscle brought on by the effort to overcome a congenitally contracted heel tendon. This may be aggravated by going barefoot and by low-heeled or heelless shoes, such as small children wear, and by tennis shoes, such as somewhat older children frequently wear. Raising the heels $\frac{3}{8}$ to $\frac{5}{8}$ in. will relieve a large percentage of cases. Those having actual pronation or flat foot may also be further benefited by an arch support inside the shoe, which should include an extension under the first metatarsal if indicated. The arch supports should not be put in without the heel lift. Inside heel lifts may be used in the tennis shoes. If the child is old enough, heel stretching exercises should be given. If the simple measures described in the question fail to give relief, 0.25 to 0.50 gm. of mephenesin orally, either in pills or liquid form, will usually be effective and will permit the child and the family to get some sleep.

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To the Editor:—*In Queries and Minor Notes, April 28, 1951, the subject of "Leg Pains in Children" was deficient in a number of important conditions. Rheumatic fever, night cramps, and several orthopedic conditions were mentioned as causes. The subject matter would not be complete without inclusion of the following conditions for differential diagnoses:*

1. *Acute infectious lymphocytosis.*
2. *Sickle cell anemia.*
3. *Peripheral neuritis (vitamin B_1 deficiency or other factors).*
4. *Acute poliomyelitis.*
5. *Periostitis due to congenital syphilis ("sabre-shin") and other conditions.*
6. *Coarctation of the aorta.*
7. *Arterial thrombosis due to post-infectious diseases.*

A characteristic feature of these conditions is that they may cause pains in the entire leg or pretibial region.

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Brookyn.

PUSTULAR BACTERID

To the Editor.—*I was interested in the query on "Pustular Bacterid" written by a physician in California. This appeared in the April 21 issue of* The Journal, *page 1306. In reading the treatment recommendations I noticed that nothing was said about footwear. Several years ago, a physician had a pustular dermatitis of the feet and hands. He had had a thorough examination for all foci of infection at a nearby medical center. He was able to obtain a pair of vegetable-tanned leather shoes which were free of all rubber, adhesives and the like. Wearing these shoes exclusively brought about a gradual improvement, and today this physician is well. He lost only two weeks from the office and I feel that changing the footwear was instrumental in helping to solve this case.*

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VERNAL CONJUNCTIVITIS

To the Editor:—*In answer to the query on vernal conjunctivitis in* The Journal *of April 21, 1951 (page 1305) one must take exception to the statement that "sensitizing agents are almost never found." The causes are generally pollens, dust, or molds. Rarely are foods incriminated. However, in my experience, these cases rarely react to scratch testing. Following negative scratch test reactions, intradermal tests must be carried out with potent extracts. We use pollen extracts in 3% strength (30,000 Noon units per cubic centimeter). The test consists of 0.05 cc. (1,500 Noon units) intradermally. When skin tests are carried out with materials of this strength positive reactions are found in the majority of patients having vernal conjunctivitis. Specific treatment based on such positive skin reactions is usually successful.*

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APPLICATION OF PHYSIOLOGIC AND PATHOLOGIC PRINCIPLES TO SURGERY OF THE OVARY

Emil Novak, M.D., Baltimore

The purpose of this paper is twofold. First, it constitutes a plea for the still widely persecuted normal ovary and the essentially normal "cystic ovary." Secondly, it offers for consideration certain pathologic principles that must be envisaged in operations on ovaries that are the seat of definite disease, especially the benign and malignant neoplasms.

NORMAL AND CYSTIC OVARIES

It was in 1872 that Robert Battey, of Georgia, incidentally one of the founders of the American Gynecological Society, instigated perhaps the first serious onslaught on the ovary, which he accused of responsibility for all manner of neuroses and menstrual difficulties. Many thousands of ovaries were sacrificed before this theory was abandoned. The greatly increased knowledge of the biologic importance of the ovary has happily engendered such a high degree of conservatism that no conscientious and well-trained gynecologist of today would treat the normal ovary wantonly.

I am not saying that removal of an anatomically and physiologically normal ovary is never justified, as we all do this in radical operations for uterine cancer. Indeed, some of us believe that there is such a thing as making a fetish of conservatism as in conservation of the ovaries when the uterus is removed because of benign disease at or after the menopause. There are some who urge this plan because they feel that the ovary must have a function even beyond the menopause. I know of no evidence to support this view, while, on the other hand, the postmenopausal ovary is often the seat of neoplastic disease, including even cancer in its usual insidious and highly malignant ovarian forms. We know of no function for the appendix, and yet most of us consider that in the absence of contraindications its prophylactic removal in combination with many pelvic laparotomies is fully justified and to the advantage of the patient. It is usually just as technically easy, and sometimes easier, to remove the adnexa with the uterus as to leave them behind, and my own feeling is that this is a wise and a worth-while prophylactic procedure in women at or beyond the menopause, and that the retention of the ovaries under such conditions would be false conservatism.

I am aware that there are differences in viewpoint on this question, and that there are circumstances in which the local involvement in the pelvis, the general state of the patient, or the patient's psychological, though often mistaken, attitude toward removal of the ovaries under the above-described conditions will influence the wise surgeon to make exceptions. When one attempts to set an age limit beyond which removal of normal ovaries is justified in women still menstruating, one encounters far greater differences of opinion, though approximately 45 years appears to be a popular figure. Here again, one is likely to be influenced by various individual factors, and certainly there can be no criticism of those who prefer to retain at least one ovary in all women who are still menstruating. As a matter of fact, in many women beyond 40, who are still menstruating normally and in whom hysterectomy is necessary, I have often deliberately removed one of the normal ovaries and conserved the other in the belief that one ovary suffices for the endocrine needs of the patient, while the removal of the other divides the hazard of later ovarian neoplastic disease.

However, the chief purpose of this section of my paper is not to preach against conservatism in the treatment of the ovaries, but rather to plead for a scrupulous hands-off surgical policy when the ovary is grossly normal or when it is the seat of minor and usually transient alterations that are apt to be loosely designated as "cystic degeneration." In taking gynecologic histories, one is struck with the frequency of combined appendectomy and resection or removal of a cystic right ovary. I believe that it may be fairly stated that this operation is not as common in the repertoire of gynecologists as it is in that of the general surgeons who perform such a large proportion of the gynecologic operations throughout the country. When such histories are reconstructed, one is likely to find that appendectomy was done, often with an incomplete diagnostic study, that the appendix was found to be discour-

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Read before the Section on Obstetrics and Gynecology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

agingly normal in appearance, and that the surgeon decided to "fire both barrels of his gun" and to remove the close-by "cystic" right ovary, as well as the appendix. To compound his error, the surgeon not infrequently thus removes two innocent organs instead of one, overlooking such real causes of pain as right urinary tract disease or functional gastrointestinal disorder.

With rare exceptions the cystic ovary should receive the same surgical respect as one that appears entirely normal. There are few ovaries that do not show at least some tiny cysts, representing nothing more than the blighted, atretic follicles that come and go from month to month throughout the functional life of the ovary. Even when the ovary is studded with these tiny cysts, there is no reason to suspect it of responsibility in the production of pelvic pain, especially in the absence of inflammatory pelvic disease. With the latter, one may see more serious degrees of cystic change, especially when the ovaries are matted beneath dense adhesions that conceivably might make rupture of mature follicles difficult. Still other types of cystic ovary are seen, such as those in which the ovarian condition is merely a local expression of endocrine dysfunction, of either ovarian or pituitary origin, as in certain cases of functional bleeding. However, these types are less likely to be the object of direct surgical attack and need not be included in this discussion.

At times one or more of the atretic follicles may, for some unknown reason, become extremely hydropic, giving rise to follicular cysts that may attain a diameter of many centimeters. Even these tend toward resorption and ultimate disappearance, but during their lifespan they produce distinctly palpable ovarian enlargement and, in the occasional case, pelvic discomfort, and, rarely, may be complicated by torsion of the pedicle. Gynecologists are in agreement that small palpable cysts of the ovary are in general to be treated expectantly, simply because of their tendency to spontaneous disappearance, with not infrequently a reappearance of similar functional cysts in the same or opposite ovary. The patient is exposed to no hazard by this expectant plan. If however, the cyst grows steadily larger from month to month, operation is advisable because of the reasonable certainty that a genuinely neoplastic cyst is presented. When moderate-sized follicular cysts are encountered at operation for other conditions, simple needling of the cyst hastens its resorption and is generally preferable to excision of the cyst. The old dictum that an ovary should be either left alone or removed entirely is no longer acceptable; there is, nevertheless, a large nugget of truth in it. Whenever partial resection of the ovary is done, as in the removal of large follicular cysts, small dermoids, or small localized areas of endometriosis, there is a hazard of such sequelae as intestinal or omental adhesions or tubal angulation, no matter how careful the surgeon may be not to leave any raw surfaces.

What to do about the ovaries is often a difficult problem in cases of endometriosis, and only a somewhat less difficult problem in cases of inflammatory pelvic disease. The greater importance of this question with endometriosis is due to the fact that the condition is under the physiological control of the ovaries. Radical removal of all ovarian tissue is fully justified and strongly advisable in the minority of cases of very extensive endometriosis in which both ovaries are seriously involved, as well as adjacent organs, such as the rectum and sigmoid. Fortunately such cases are less likely to be encountered among patients of the younger group than among those approaching middle life, on whom the sacrifice of the reproductive function has already been inflicted by the disease; the sacrifice of endocrine function is often a modest price for such patients to pay for relief of their symptoms. There is no longer a place for the extensive and hazardous resections that were at one time recommended for the widespread infiltrations of the rectum and sigmoid in some of these cases, although colostomy is in rare cases necessary because of existing or impending obstruction. Removal of all ovarian tissue brings about regression of the endometriosis and also of the patient's symptoms. When, as is true of an occasional case, the removal of all ovarian tissue is technically impossible, postoperative irradiation will accomplish the desired abolition of ovarian function.

Far more frequently, however, the endometriosis is of much more moderate extent and there is now little difference of opinion about the wisdom of conservative plans of surgical treatment adapted to the findings in the individual case, but with always the end object of preserving the endocrine and reproductive functions. Even when one ovary must be removed because of a large endometrial cyst, the excision of a smaller endometrial cyst in the other ovary is preferable to bilateral oophorectomy. Associated lesions of the uterosacral ligaments may be treated by cautery destruction or local excision, but the latter may be difficult and admittedly sometimes incomplete. Yet the patient is likely to be relieved of her symptoms, especially if presacral neurectomy is also carried out when dysmenorrhea has been severe.

One cannot argue that the lesion is always completely eradicated by such conservative operations, or that there is not a possibility of its later resurgence, with the necessity of further operation. However, the incidence of this sequence is far less than might be imagined, while, on the other hand, the fairly frequent occurrence of subsequent pregnancy has been noted in all the statistical studies that have been made. I am sure that every gynecologist always has under his care a certain number of patients in whom he is sure a primary or a residual postoperative endometriosis is present, but with no symptoms or with easily tolerable symptoms. Expectant or simple palliative treatment of such patients is to be preferred to operation, just as one would ordinarily abstain from operating on patients with such clearly palpable evidences of chronic inflammatory pelvic disease as adherent and enlarged ovaries, when these occur with few or no symptoms.

A word may be interjected here in behalf of the usually normal tubes encountered in association with endometriosis, and also the frequently normal ovary seen in cases of chronic salpingitis. It is often advisable to conserve such normal organs, since the later development of serious pathologic involvement on the other side may make reoperation necessary. I have often wished for such a spare ovary when removal of the remaining ovary was necessary in patients who had previously been operated on for tubal pregnancy on the contralateral side, and in whom the surgeon had unwisely and usually thoughtlessly removed a good ovary with the pregnant tube.

OVARIAN NEOPLASMS

What has been said thus far has applied to the surgeon's proper attitude toward ovaries that are anatomically entirely normal or that at most display relatively harmless departures from the normal. The ovary is often the seat of definite and sometimes grave pathologic involvement, especially of neoplastic type. In these cases the surgeon is often posed with difficult problems of the scope and extent of the operation that should be done in the best interests of the patient. It is clear that the surgeon who knows something of the gross characteristics and the pathologic potentialities of the various ovarian neoplasms has an advantage over the one who does not. On the other hand, the most pathology-minded surgeon, or even the one who can have at his elbow the most expert pathologist, is not always certain to make the right decisions. The frozen section as an aid to operating-room technique has some value but also definite limitations, and I for one have depended on it much less than on the gross characteristics of the ovarian lesion. Only a few of the more important problems that arise in this field can be touched on in this paper, and probably most conveniently by discussing surgical principles as applied to the major tumor groups.

Cystadenomas of Ovary.—It is not always possible from the external or even the internal appearance of a cystadenoma of the ovary to be sure whether the neoplasm is of pseudomucinous or serous type, or whether both varieties are represented in the ovary, as occasionally happens. However, certain generalities in regard to the management of neoplastic cysts may be profitably discussed.

If a large unilateral ovarian cyst shows a smooth outer surface, a thin or at times an almost translucent wall, and if on being opened it shows many locules and no papillomatous excrescences, it is likely to be of benign pseudomucinous type and can be safely treated by unilateral adnexal removal. It must be remembered, however, that even the histologically benign pseudomucinous epithelium of such cysts is capable of implantation on the peritoneum if disseminated through rupture of a cystic locule, giving rise to the rare but usually ultimately fatal pseudomyxoma peritonaei. This is the basis of the general practice among gynecologists of trying to remove such cysts intact, even when very large and when their removal without preliminary trocar drainage involves a very long incision. In some cases extensive and firm adhesions make this impossible, and in these the trocar decompression of the cystic mass must be carried out with proper precautions against peritoneal contamination, such as adequate packing-off, placing of a purse-string suture around the cannula, and drawing the point of puncture of the cyst wall outside the abdominal wall as soon as the cyst is sufficiently collapsed. This is not to say that peritoneal contamination with the fluid of such cysts will inevitably be followed by peritoneal implantations; for pseudomyxoma peritonaei has always been rare, in spite of the fact that accidental contamination of the peritoneum has certainly often occurred, and the gynecologists of a former day rather generally practiced decompression of large cysts. We can only speculate about the determining factors of this condition, but there seems to be no question of the advisability of avoiding peritoneal contamination in such cases. Again, we must not forget that a cyst that appears to be benign may be undergoing carcinomatous change somewhere in its wall, and that genuine peritoneal carcinomatosis may thus occur instead of the implantation of benign epithelium.

It seems advisable to emphasize here a point that I believe to be an important one. I refer to the wisdom of opening every cyst immediately after its removal, before the abdomen is closed. I shall have occasion to stress this point with regard to the solid or semisolid tumors of the ovary. A cyst that because of its smooth and thin wall looks innocent may, on being cut into, show, perhaps in a localized area, a mass of papillary or fungoid appearance or a hard nodular mass or a mass or nodule of fine-meshed spongy appearance. The discovery of such areas must at once sound the alert, and I believe that most of us would feel safer to make the operation a radical rather than merely a unilateral one. In some cases a frozen section may be helpful, but a report is not always quickly obtainable, and, even if it is it is all too frequently not decisive. All too often the surgeon who removes a large cyst intact wants to keep in intact until he gets a photograph or a drawing, or shows it with pride at the next staff meeting. But if he keeps in mind only the best interests of his patient, he will have the cyst opened immediately after its removal, so that it can be more intelligently evaluated by himself or by his pathologist colleague.

The papillary type of cyst, usually of serous character, presents the most difficult problems of surgical judgment. Undoubtedly, this group is possessed of far greater and more wicked potentialities than is the pseudomucinous type, which is usually nonpapillary. Naturally and properly, therefore, the attitude of most gynecologists toward papillary cysts is likely to be much more radical than toward the nonpapillary group. No one can assume an oracular role in outlining the surgical policies to be pursued, for many tumors of the papillary group exhibit clinical vagaries that make prognosis difficult.

A few general statements can be offered for consideration and discussion; but, before I embark on this, it should be emphasized that not only the clinician, but also the pathologist in his interpretation of the microscopic picture of tumors of this group, must recognize the difficulties of prognosis. For example, the pathologist does not hesitate to report that certain tumors are histologically entirely benign, but can he in such cases assume that the patient may not return with a peritoneal recurrence? He will be the first to emphasize that he cannot make this assumption without error in at least a small proportion of cases. Again, he will have no doubt in diagnosing many tumors as both histologically and clinically malignant. However, in an inevitable proportion of cases he cannot be too certain of even the histologically benign and histologically malignant, and he is likely to find differences of opinion among other pathologists to whom he refers his sections.

This digression on pathology is justified simply because it emphasizes the difficulties and the seriousness of the surgeon's problem in such cases, his decisions being necessary even before the results of complete pathologic study are available. As a matter of fact, in some cases the scope of the operation and the decision whether it should be conservative or radical are influenced by weighing one factor against another. The surgeon has to consider the age of the patient and the importance or unimportance of preserving the reproductive function against the possibility of future hazard to his patient if, on the basis of his evaluation of the tumor, a conservative operation is done. This method seems to make him something of a scientific gambler, but he should not make a great many mistakes if he has some knowledge of the gross pathologic characteristics of tumors of this sort.

In the case of a patient of the younger group, in which the surgeon would of course like to be conservative if possible, if an ovarian cyst, on being opened, shows a number of discrete and not very exuberant papillary ingrowths and if the other ovary is entirely normal, simple unilateral removal is fully justified, with ordinarily no unpleasant repercussions. Even if a few warty outgrowths are seen on the outside of the cyst, a similar plan can be followed. These do not indicate malignant penetration of the papillary growth but are produced merely by the manner of development of the tumor, representing a combination of surface papilloma and serous papillary cyst. As a matter of fact, the solid papillary portion may greatly dominate the picture and may be present in the entire absence of any cyst formation.

It is difficult to explain why such exuberant external papillomas may be present without peritoneal implantation, while with at least some histologically benign papillary cysts such implantation may occur. I recall a patient whose whole pelvis was filled with an enormous bilateral papillary ovarian growth that infiltrated surrounding organs and that could literally be scooped out by the handful. It was certain, therefore, that in spite of the radical operation that was done, innumerable tumor cells must have been left. And yet this patient has remained perfectly well for more than 25 years.

The fact remains that when a cyst is filled with large masses of this papillary material, often necrotic, it is likely to be malignant and certainly should be treated accordingly.

Solid and Semisolid Tumors.—When one comes to solid or semisolid tumors of the ovary, some knowledge of gross pathology is again of value, with again an inevitable possibility of error. Fibromas and Brenner tumors are usually readily recognized by their sharp circumscription and by the whitish or slightly yellowish appearance of the homogeneous-appearing cut surface.

In all but a small proportion of the solid or semisolid forms of carcinoma, a presumptive gross diagnosis can be made. There are certain solid types, it is true, in which mistakes can be easily made, as in the scirrhous carcinoma or even the unilateral Krukenberg tumor, either of which can be mistaken for fibroma.

The mention of Krukenberg tumor is a cue for emphasizing the importance of careful palpation of the abdominal organs, especially the stomach, in all cases of tumors in which malignant change is suspected. Not only may the primary tumor be revealed, but also the presence of metastasis in the liver, omentum or parietal wall may be determined.

Unfortunately, the malignant nature of many solid or semisolid ovarian tumors is at once obvious enough because of the infiltration of surrounding tissue, the granularity, friability, and often necrosis of the tumor tissue, and very often the presence of extensive peritoneal metastasis. In the less advanced cases of unilateral tumors, either solid or semicystic, which are still well encapsulated, one need not make many mistakes if one bears in mind the fact that such tumors ordinarily have the tissue characteristics that were mentioned above for the more advanced infiltrating growths.

While radical operation is the desideratum in malignant ovarian growths, it is unfortunately impossible in a large proportion of cases because of the already widespread dissemination of the disease. Even in the presence of peritoneal or visceral metastases, removal of the primary growth is advisable if this is technically possible without too great a hazard, as gynecologists are fairly well agreed that removal of the primarily involved ovaries does appear to have a definitely retarding effect on the course of the disease. Incidentally, the presence of ascites and hydrothorax does not justify the conclusion that a solid tumor of the ovary is malignant, but a roentgenogram of the chest is always advisable when malignant change is suspected.

With regard to the less common types of ovarian malignant growths, such as the granulosa-cell carcinoma and thecoma, dysgerminoma, or arrhenoblastoma, one will often be alerted to them by the age of the patient and the biological effects produced by the functioning group. The possibility of dysgerminoma should always be envisaged in tumors in young girls, but there are other possibilities, such as teratoma and sarcoma. The granulosal tumors of young girls often reveal themselves in the precocious puberty syndrome that they produce at this age. In any of the dysontogenetic group of tumors, when encountered in early life, conservative unilateral operation is fully justified if, as is most usually the case, the tumor is of small or moderate size and if it has not broken through the capsule and infiltrated surrounding tissues. To say that recurrence and metastasis cannot occur would be incorrect in the light of the many reports in the literature to the contrary, but the hazard is numerically not sufficiently great in cases of the type described above as to justify routine radical procedures. The granulosothecal group of tumors occurs most frequently in middle or late life, and, although the degree of malignant involvement with this type is definitely less than with the commoner ovarian cancers, I believe that at these age periods they should call for radical operation. I have always felt that most pathologists take these tumors much too lightly, and that metastasis and recurrence, sometimes early, but often very late, occur much oftener than is generally believed. It is my impression that the study of the steadily growing material of the Ovarian Tumor Registry will confirm this belief.

There are many gaps in the above discussion of the surgical physiology and surgical pathology of ovarian neoplasms, but even this necessarily brief consideration will, I hope, emphasize the clear advantage to the surgeon of training himself to be his own operating-room pathologist. The next best thing is to have at his elbow a competent pathologist, but this is not always possible, nor are all general pathologists highly trained in the rather special field of gynecologic pathology. *The gyne-*

cologist who is unhappy if he cannot follow his material through the pathologic laboratory will acquire an increasing knowledge of correlated gross and microscopic pathology. This gives him increasing confidence in the decisions he must make at the operating table, besides adding to his daily work a zest and scientific enthusiasm that his more mechanistic confrere can never enjoy.

ABSTRACT OF DISCUSSION

Dr. Ludwig A. Emge, San Francisco: The essayst will forgive me for not sharing his belief that the ovary is of little consequence during the menopausal years. This period of a woman's life is an uncertain time quantity, and here in California, where menopause occurs most frequently at 50 yr. or over, the casual removal of the ovaries at hysterectomy done for purely uterine causes in the middle forties, just because that period is considered the traditional age of menopause, is not warranted. The assumption that removing just one ovary will reduce the incidence of cancer by 50% unfortunately is defeated by the law of probability, since ovarian cancer occurs bilaterally in 50%, and, when it occurs unilaterally, it has no choice of location. I doubt that the protective value of such a prophylactic approach would yield more than a bare 10% probable safety factor against a cancer that is relatively rare. This does not justify the casual sacrifice of thousands of normal ovaries. I have never seen cancer of the ovary after hysterectomy except in a few instances in which the appearance of the cancer warranted the conclusion that the disease had been overlooked at the time of operation. If one ovary is good enough to remain with the host, why not both? I see no parallel between so-called prophylactic appendectomy and casual oophorectomy. I am afraid of such a philosophy because it encourages unnecessary surgical intervention. We do not apply such a principle to any other vital organ. There is no objection to the removal of advanced senile ovaries, but many are left behind in vaginal hysterectomies in old women, and no harm ensues from doing so. In regard to the treatment of cancer of the ovary, I should like to plead for two procedures that have been of great help in palliation, as well as cure, on one hand and of inestimable value in evaluating the extent of the disease on the other. Not infrequently pathologists find it difficult to determine with finality the true nature of cystic ovarian neoplasm. I have for years taken free fluid from the abdomen as soon as the abdominal cavity has been opened, for the purpose of ascertaining the nature of the cells in the abdominal fluid. The presence of malignant cells can be determined almost as quickly and reliably as with a biopsy. The same holds true of the study of the contents of cysts. Today, with the steadily improving cytologic smear facilities, this procedure is now more feasible than ever to prognosticate subsequent events. A second plea is to desist from immediate surgical intervention wherever the operability of a malignant ovarian tumor is in question. Obtain free fluid for study, or obtain a metastatic nodule if it exists, but do not make a biopsy of the tumor proper solely for academic reasons. Close the abdomen, and let the radiologist take over. Should the tumor shrink, it is often possible to remove the malignant mass relatively easily after the skin has recovered. Not only has palliation in my hands improved immediate results materially, but five-year survivals have come up from 18 to nearly 30%.

Dr. Lyman W. Mason, Denver: If there is one part of Dr. Novak's paper to which I should like to add my emphasis, it is that which has to do with the frequent surgery done on the physiologically normal ovary. This consists in the removal of normal follicles, normal corpora lutea, and simple retention cysts, even though of considerable size. He also called attention to the seeming preponderance of "cysts" in the right ovary. It took me some years to realize that this seemingly increased susceptibility of the right ovary to pathologic changes, usually "cysts," was dependent on the fact that the right ovary was accessible through an appendectomy incision, while the left usually was not. Thus, by a distance of 7 or 8 in. (18 or 20 cm.), the left ovary usually escaped damage. I agree with Dr. Novak that "there is a large nugget of truth" in the dictum that an ovary should be either left alone or removed entirely. Ovaries do not stand too much interference in their circulation. It is a mistake to leave a very small portion of one ovary when extensive pelvic surgery has been performed. Such pieces become incarcerated in scar tissue or embedded in the posterior surface of the broad ligament, with the production of menometrorrhagia and/or pain, necessitating subsequent operative procedures. Surgical intervention is not indicated when the ovary is only moderately increased in size, when it is not progressively increasing in size, when the patient's menstrual periods are within normal limits, or when the enlarged ovary is not producing other symptoms. If left alone, most of these enlargements will eventually disappear. I have cured many more cases of menstrual abnormalities with the use of thyroid than I have with ovarian surgery. There is a laudable growing interest in conservative surgical treatment of endometriosis, especially in the interests of fertility. I agree that there is no reason to leave the ovaries in any woman over the age of 45 when pelvic surgery is done, since they have, or have about, reached the end of their span. In women between the ages of 40 and 45, it is my practice to leave those ovaries that are not pathological, since many women do not cease to menstruate until between the ages of 50 and 55, and in women under the age of 40 to leave all those in which the visible pathologic change is minor. I agree with what Dr. Novak has said about the surgery of ovarian neoplasms, those definitely malignant, as well as the pseudomucinous cysts and serous cystadenomas. Dr. Novak did not mention the seemingly extensive involvement that may appear in ovaries in connection with hydatidiform mole and corionepithelioma. I am sure that the surgical measures of many who do pelvic surgery would be much more conservative if their testicles were involved rather than their patient's ovaries.

Dr. Emil Novak, Baltimore: On all points except one Dr. Emge and I are apparently in full agreement. My paper has included a plea for conservatism in ovarian surgery for benign lesions during reproductive life. On the other hand, when hysterectomies are done in menopausal and postmenopausal women, it is my belief that it is false conservatism to retain the ovaries. So far as I know, no one has ever shown that these organs, so important during reproductive life, are of any functional importance after the menopause. Moreover, while I agree with Dr. Emge that carcinoma in such residual ovaries is rare, there are few of us who have not at times been obliged to reoperate because of other lesions, chiefly cystic and at times cystadenomatous. The removal of the ovaries at the times of hysterectomy is ordinarily just as easy as the hysterectomy alone, sometimes easier, and it is likely to leave a cleaner and better peritonealized pelvis. It would be foolish to set arbitrary age limits beyond which the complete operation is to be performed, and individualization must be practiced here as in all surgical problems. In the occasional woman, usually one with wrong ideas concerning the effects of ovarian removal at this age, the surgeon had better leave one or both ovaries to avoid any psychologic repercussions. As a rough working rule, the age of 45 would probably be considered a fair point of departure, although exceptions in either direction can properly be made.

Balanced Anesthesia.—The modern trend in anaesthesia is toward the employment of small doses of various drugs which may be given by several routes and excreted in different ways. This "balanced anaesthesia," as it is called, is another method of attempting to obtain the ideal. The argument is presented that small amounts of many agents are less toxic to the patient than a large amount of a single agent. The safety factor to the patient is widened, and the balanced anaesthesia induced keeps him close to the physiologic normal during operation. These trends are a healthy sign in the specialty. They indicate that the anaesthetist, unlike his patients, is not sleeping quietly, content with the knowledge which has been accumulated. He is looking forward and upward, in the realization that only the fringe of potential possibilities has been explored.—C. R. Stephen, M.D.C.M., and H. M. Slater, M.D., *Anesthesiology,* March, 1951.

PILOT STUDY OF MATERNAL AND NEONATAL FACTORS IN PREMATURE INFANT MORTALITY

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and
Hilda Knobloch, M.D., New York

Since premature birth is the largest single cause of infant and neonatal mortality[1] nationally as well as locally in New York City, it is evident that further significant reduction in these mortality rates will be achieved only by the prevention of premature birth and by the provision of better pediatric and nursing care for the prematurely born infant. Significant reduction of maternal mortality has occurred to a great extent as a result of intensive studies which medical and public health groups have conducted of individual maternal deaths and as a result of the application of the knowledge thus acquired. It is reasonable to expect that a comparable method, if applied to deaths among prematurely born infants, might accomplish similar results. Therefore, a pilot study of a sample of deaths among prematurely born infants in Brooklyn was undertaken jointly by the Child Health and Welfare Committee of the Kings County Medical Society and the Maternity and Newborn Division of the New York City Department of Health.

METHOD OF STUDY AND SAMPLE STUDIED

Death certificates were obtained for all premature infants (those born alive weighing 5½ lb. [2,500 gm.] or less at birth) who died during the month of February 1949, before reaching their first birthday. A special form was prepared for the study, which included detailed questions regarding the antepartum, labor and delivery course of the mothers, as well as the condition and care of the premature infants in the delivery room and nursery. The hospital clinical records of the mother and infant and autopsy reports were reviewed by a pediatrician, the available information recorded on the study form, and the data tabulated. As the data are presented, it will be apparent that not all hospital records contained the necessary information. Yet, valid information in many important areas of care can be presented.

During February 1949, 55 premature infants died in Brooklyn. This figure represents approximately one-twelfth of all annual premature infant deaths and 1% of all annual premature infant births in Brooklyn. Two infants were excluded from the final tabulations because death occurred at four and one-half months of age from causes apparently not related to prematurity. One infant died at home after a fracture of the right femur and ensuing bronchopneumonia due to a fall from bed. The second infant, gaining well for two months after discharge from the hospital, was admitted three days after the onset of an acute upper respiratory infection and died four days later of lobar pneumonia.

The remaining 53 infants died in 24 different hospitals in Brooklyn. All except five deaths occurred in the hospital of birth. Two infants were born at home and transferred by ambulance to hospitals one hour after birth. A third infant was discharged from the hospital of birth at 6 days, admitted to the hospital of death at 12 days, and died on the 15th day. A fourth infant was discharged from the hospital of birth at 7 days, admitted to the hospital of death at 31 days, and died on the 66th day. A fifth infant, weighing 794 gm., was transported from the hospital of birth by the Special Premature Transport Service of the New York City Departments of Health and Hospitals at 47 hours of age; he died 7 hours after transport. Forty of the 53 infants were white.

PERTINENT MATERNAL FACTORS

There were 50 mothers of this group of 53 infants, of whom 44% (22) were primiparas; the parity in this series is the same as that of all women delivered in New York City. Other previous studies[2] indicate a high incidence of premature birth in women in their first pregnancy. The 28 women who had had previous pregnancies had delivered 24 full-term, 20 whose status is unknown, and 13 premature infants—at least one out of 4.5 previous pregnancies had terminated prematurely.

Of this group of 50 mothers where the nature of the antepartum care was stated, approximately 50% (24) were private patients and 25% (13) were general service patients. Five women had had no antepartum care. In only 17 instances was any detailed information about the antepartum course recorded.

Taylor and his co-workers[3] have shown that when the mother has a serious medical or surgical complication, the premature infant mortality rate is four to five times that of infants born of healthy mothers. Thirty-eight per cent (19) of the mothers in this series had complications of pregnancy which may have played a role in premature labor and delivery, either because they necessitated early termination of pregnancy or because they indicated interference with the nutrition of the fetus. Included were cases of bleeding, toxemia, ruptured appendix, and malnutrition.

It is well accepted that women who are in premature labor should receive no analgesia[4] in order to protect the respiratory mechanism of the fetus. Certainly morphine is usually considered to be the most depressant of all analgesic agents. In this sample, the mothers of almost 50% (23) of the infants received some type of analgesia, including the mothers of 6 infants who received morphine (table 1).

Similarly, it is generally accepted[5] that women in premature labor should not receive a general inhalation type of anesthesia because of the anoxia produced. It was not possible to administer an anesthetic to the mothers

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From the Maternity and Newborn Division, New York City Department of Health, and the Child Health and Welfare Committee of the Kings County Medical Society.

Although this report is being presented by three pediatricians, it could not have been prepared without assistance from the allied fields of obstetrics and nursing, and we wish to acknowledge the valuable consultative advice which we received.

Chief, Maternity and Newborn Division, New York City Department of Health (Dr. Wallace); Chairman, Child Health and Welfare Committee, Kings County Medical Society (Dr. Rascoff), and Pediatric Consultant, Maternity and Newborn Division, New York City Department of Health (Dr. Knobloch).

[1] Premature Infants, United States Childrens Bureau Publication no. 325, Washington, D. C., United States Government Printing Office, 1948, p. 33.

[2] Anderson, N. A.; Brown, E. W., and Lyon, R. A.: Causes of Prematurity II. Comparison of Maternal Histories of Premature and Fullterm infants, Am. J. Dis. Child. **61**: 72 (Jan.) 1941.

[3] Taylor, E. S.; Phalen, J. R., and Dyer, H. L.: Premature Infant Mortality, J. A. M. A. **141**: 904 (Nov. 26) 1949.

[4] Irving, F. C.; Berman, S., and Nelsen, H. B.: Barbiturates and Other Hypnotics in Labor, Surg., Gynec. & Obst. **58**: 1, 1934. Mengert, W. F.: Morphine Sulphate As an Obstetric Analgesia, Am. J. Obst. & Gynec. **44**: 888, 1942.

[5] Smith, C.: Effects of Birth Processes and Obstetric Procedures Upon the Newborn Infant, in Levine, S. Z.; Butler, A. M.; Holt, L. E., Jr., and Weech, A. A.: Advances in Pediatrics, New York, Interscience Publishers, 1948, vol. 3, p. 1-48.

of 8 infants because they precipitated in bed or delivered at home. Almost 30% (13) of the remaining 45 infants were subjected to the possible adverse effects of inhalation anesthesia (table 2).

It is generally felt by obstetricians that because of the fragility of the vascular system and the tendency toward hemorrhage, premature infants should be delivered by low forceps immediately after full dilatation of the cervix when the head is on the perineum; certainly a second stage of labor longer than 30 minutes is not desirable. In this series, the mother of 17% (9) of the infants remained in the second stage of labor for from 30 minutes to 2 hours.

TABLE 1.—*Status of Analgesia*

Type of Analgesia	No. of Infants	
Meperidine (demerol®)	13	23 (44%)
Morphine	6	
Meperidine and scopolamine	2	
Secobarbital	2	
None		28 (55%)
No information		2 *
Total		53

* Two home deliveries.

It is well known that breech presentation [6] and cesarean section carry a higher neonatal mortality than does vertex presentation but that additional factors other than the method of delivery influence the survival rate in cases of premature labor. Acken [7] has shown that there has been a marked decrease in the maternal mortality rate following cesarean section without any comparable decrease in fetal mortality rates and that prematurity is the most frequent cause of the fetal mortality. One might conclude that section should be performed for maternal indications, but that it does not offer any advantages if performed for fetal indications alone. In this series, 14% of the babies were delivered by cesarean section and 6% by breech extraction. The over-all incidence of cesarean sections in New York City is 3.6%.

It is strongly recommended by most obstetricians that episiotomy be used at the time of delivery; low forceps is almost as widely accepted as a necessary procedure. In only 25% of the instances in which it was possible was episiotomy performed or low forceps used. A combination of the two procedures was used in only 20% of the possible cases (table 3).

TABLE 2.—*Status of Anesthesia*

Type of Anesthesia	No. of Infants
Inhalation	13 (30%)
Spinal	5
Saddle block	4
Local	4
Caudal	3
Pudendal	2
None	12
Not possible to administer	8 *
No information	2
Total	53

* Precipitated in bed or delivered at home.

CARE OF THE PREMATURE INFANT IN THE DELIVERY ROOM

Obstetric, pediatric, and anesthesiology authorities are becoming increasingly aware of the importance of resuscitation as a lifesaving measure in the delivery room when spontaneous respiration is delayed. The Kings County Medical Society [8] has recently issued an excellent guide on the preventive and therapeutic methods of management of asphyxia neonatorum. No information was recorded in the clinical records about spontaneous respiration in 51% (27) of the infants, or about the use of resuscitation in 38% (20). It was stated that 22% of the infants breathed spontaneously. Resuscitation of varying types (intratracheal or nasopharyngeal aspiration with or without oxygen, given directly or under positive pressure) was used for 40% (21) of the infants, including two who breathed spontaneously (table 4).

One of the cardinal principles in the care of the premature infant is that the infant must be assisted in maintaining respiration. It has been shown that supplying oxygen may change the periodic type of respiration, frequently seen in premature infants, to a regular pattern.[9] Most pediatric authorities agree that oxygen should be provided continuously from birth for at least 24 hours, *particularly for small premature infants.* Only 13% (7) of all infants received oxygen continuously in the delivery room, and an additional 20% (10) received it only in the course of resuscitation. Of those 19 infants who were stated to be cyanotic at birth, 63% (12) received oxygen, either continuously or during the course of resuscitation (table 5). As would be expected, there was an inverse relationship between birth weight and tendency toward cyanosis, and all 7 premature infants who received oxygen continuously in the delivery room weighed less than 1,500 gm.

TABLE 3.—*Use of Low Forceps and Episiotomy at Delivery (in Cases in Which This Was Possible)**

	Low Forceps Only	Episiotomy Only	Both
Yes	2 †	5 ‡	6
No	23	33	25
	25	38	31

* Thirteen breeches, 7 cesarean sections, 2 home deliveries.
† Total of 8 patients with low forceps.
‡ Total of 11 patients with episiotomy.

TABLE 4.—*Spontaneous Respiration and Use of Resuscitation in the Delivery Room*

Status of Spontaneous Respiration and *Resuscitation*	Spontaneous *Respiration*	*Resuscitation*
Yes	12 (22%)	21 * (40%)
No	14	2
Not necessary	..	12
No information	27 (51%)	20 (38%)
Total	53	55 *

* Two infants breathed spontaneously at birth but were also "resuscitated."

There was no information on the use of oxygen in the delivery room on 41% (22) of the clinical records, and no information at all about the provision of heat

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6. Dieckmann, W. J.: Fetal Mortality in Breech Delivery, Am. J. Obst. & Gynec. 52: 349, 1946. Clifford, S. H.: Reduction of Premature Infant Mortality, J. Pediat. 5: 139, 1934. Breese, B. B., Jr.: Influence of Factors Before and at Delivery on Premature Infant Mortality, ibid. 12: 648, 1938.

7. Acken, H., Jr.: Fetal Mortality in Caesarian Section, Am. J. Obst. & Gynec. 53: 927, 1947.

8. Prevention and Treatment of Asphyxia of the Newborn, by the Child Health and Welfare Committee, Maternal Welfare Committee, and the Committee on Anesthetic Study, Bull. King County Med. Soc. 28: 179 (May) 1949.

9. Wilson, J. L.; Reardon, H. S., and Murayama, M.: Anerobic Metabolism in the Newborn Infant. I. On The Resistance of the Fetus and Newborn to Oxygen Lack, Pediatrics 1: 581, 1948.

and oxygen in the transfer of the infant from the delivery room to the nursery.

Because the premature infant is physiologically unequipped to withstand changes in external environment, it is well accepted that means of controlling environmental temperature and humidity must be supplied. Only 10% (5) of the infants were stated to have been provided with heat in the delivery room.

TABLE 5.—*Correlation of the Presence of Cyanosis with Administration of Oxygen in the Delivery Room*

Use of Oxygen		Presence of Cyanosis Yes	No	Not Stated	Total
Oxygen continuously at birth	63%	3	1	3	7 (13%)
Resuscitation oxygen only at birth		9	0	1	10 (20%)
Oxygen not given		4	3	7	14 (26%)
No information		3	5	14	22 (41%)
Totals		19	9	25	53 (100%)

CARE OF THE INFANT IN THE NURSERY

To complete the picture of the use of the heat and oxygen, oxygen was supplied to 96% and heat to 80% of the 49 infants who survived to reach the nursery. Although this finding is in contrast to the recording in the delivery room, there was a delay in the provision of these necessary adjuvants in approximately 20% of the cases (table 6). This delay varied in time from one hour to 34 days, and in four cases it was given just prior to death.

Although the scientific value of the use of vitamin K in the prevention of hemorrhagic manifestations is not proved, nevertheless, many obstetric and pediatric authorities recommend its routine use for women in premature labor, or for premature infants immediately after birth. In 33% of the cases, neither mother nor infant received vitamin K.

Proper feeding is one of the most important aspects of premature infant care. Some of the factors to be considered are the period of starvation prior to initial feeding, the method of feeding, reactions to feeding, and the training of the personnel who feed the infants. In the final analysis, the time of initial feeding depends on the clinical evaluation of the individual infant. It is generally accepted, however, that time for rest, for the establishment of an adequate swallowing reflex, and allowance for homeostasis are more important than the provision of calories in the first days of life of a small premature infant. Many pediatric authorities feel that for these reasons it is safer to wait 24 to 48 or even 72 hours prior to feeding an infant weighing less than 1,500 gm. at birth and that certainly no premature infant should be fed prior to 12 hours.[10] The period of initial starvation varies inversely with the birth weight.

TABLE 6.—*Time of Provision of Heat and Oxygen After Arrival in Nursery*

Time of Provision	Heat		Oxygen	
Continuous in delivery room and nursery	5		7	
On arrival in nursery	26		29	
Within 30 min. after arrival	1		..	
1-2 hr. after arrival	1	7	1	11
2-3 hr. after arrival	3		3	
4-7 hr. after arrival	2		2	
Within 1st day after arrival	..		1	
33 hr. after arrival	..		1	
72 hr. after arrival	1		2	
34 days after arrival	..		1	
None provided at all	3	20%	..	
No information	7		2	4%
Totals	49*		49*	

* An additional 4 babies died in delivery room.

One infant weighing less than 1,000 gm. at birth, 2 in the 1,000 to 1,499 gm. group, 1 in the 1,500 to 1,999 gm. group and 3 in the 2,000 to 2,499 gm. group, or a total of 7 infants, were fed within the first 12 hours after birth. Thirty infants died before feeding was initiated (table 7).

All varieties of methods were used for the 23 infants who were fed—gavage, dropper, Breck feeder and nipple, alone or in combination. A Breck feeder, which most pediatric authorities feel may be a serious hazard from the viewpoint of aspiration, was used in three instances. Although it was not possible in most instances to tell from the records whether the infants were held or supported when fed, personal observations have shown that the propping of bottles, even for premature infants, is not an uncommon practice.

An important clinical guide in planning the method of feeding of premature infants is the infant's reaction to feeding. Of the 23 infants who were fed, approximately 50% had regurgitation and cyanosis following feeding. No information on these points was given for another 40%. The frequency of these reactions varied from after one feeding to after all feedings. It seems reasonable to suggest that, because of the relatively high incidence of unfavorable reactions to feeding, more judgment must be used in selecting the method of feeding for each infant, and the skill of the personnel who do the feeding must be carefully scrutinized.

TABLE 7.—*Birth Weight Correlated With Time of Initial Feeding*

Time of Initial Feeding	Birth Weight, Gm. Not Weighed	Less than 1,000	1,000-1,499	1,500-1,999	2,000-2,499	Total
No feeding	3	14	7	2	4	30
4 through 7 hr.	0	0	0	1	1	2
8 through 11 hr.	0	1	2	0	2	5
12 through 23 hr.	0	1	2	3	1	7
24 through 47 hr.	0	2	2	3	2	9
	3	18	13	9	10	53

It is generally agreed by pediatricians that nursing skill is one of the most important factors in the feeding of premature infants, as well as in their general care. In this series, a wide variety of nursing personnel and, at times, medical personnel fed these infants. Included were registered nurses, practical nurses, student nurses, hospital attendants, pediatricians and house staff members. Of all the individual members of the nursing personnel who fed premature infants, only one had had advanced training in the care of premature infants at the time these infants received care.

There were 186 nurses who gave care to this group of 53 premature infants; 63% were registered professional nurses, 23% were practical nurses, and 6% were student nurses. It is interesting to note that 50% of the registered professional nurses worked in 4 of the 24 hospitals. More important, eight infants received their complete care from practical nurses. It was found that care was

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10. Gordon, H. H.: Feeding of Premature Infants, Am. J. Dis. Child. 73:713 (June) 1947.

given wholly by practical nurses to an additional four infants on one tour of duty and to an additional two infants on two tours of duty.

Just as skilled nursing is necessary in the care of premature infants, so too is skilled pediatric supervision. Seventy-five per cent of the 27 infants who were under the care of an attending physician were supervised by a pediatrician. Twenty-four infants were under the care of house staff almost exclusively from the pediatric service. In other words, 80% (43) of the infants were under some type of pediatric supervision (table 8). Of the two infants who had no medical care, one died in the delivery room immediately after birth. The time after birth when the infants were seen by an attending pediatrician is likewise of importance. Half were seen by an attending pediatrician in the infant's first 24 hours of life. The other half were seen for the first time by attending pediatricians from the second to the tenth day of life.

AGE AND CAUSE OF DEATH

It is well known that the first 48 hours of life are the critical period for the premature infant. The infants in this series show little deviation from the usual pattern. Fifty per cent of the infants who died did so in the first 24 hours, and a total of 86% died in the first week. Only 3 of the 34 infants weighing less than 1,500 gm. at birth who died survived the first week, while 25% of the larger infants lived longer than seven days (as shown in the chart, where the solid column represents infants who weighed over 1,500 gm. at birth and the stippled column represents infants who weighed under 1,500 gm. at birth). As would be expected, 40% of the deaths occurred in infants weighing less than 1,000 gm. at birth. Approximately 20% of the remainder of the deaths occurred in each of the other three birth weight groups (table 9).

TABLE 8.—*Medical Care of Infant*

Type of Medical Care		No. of Infants
Attending physician		27
Pediatrician	21	
General practitioner	4 *	
Obstetrician	2	
House staff only		24
Pediatric	22 *	
Obstetric	2 *	
No medical care		2 *
Total		53

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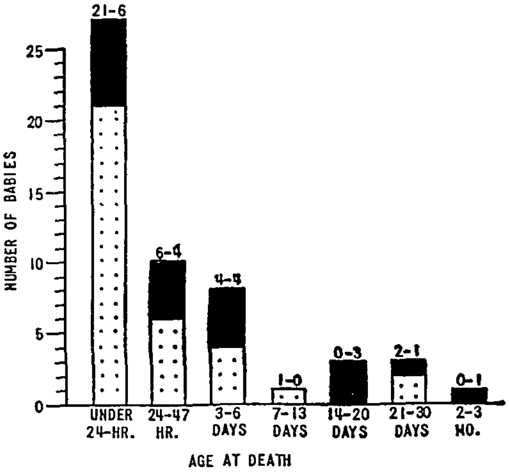
* One infant in each group died in delivery room.

Obviously, one of the points of greatest interest to clinicians is the specific cause of death in this group of premature infants. There were three sources of information on cause of death: the autopsy report, the clinical record of the infant in the hospital, and the death certificate.

Autopsies were performed on 29 of the infants; 60% were done by pathologists, and the remaining 40% by residents in pathology. Seven autopsies were incompletely done. No clinical diagnosis was recorded on the hospital record of 12 infants.

Death was attributed to prematurity alone in over 40% of the cases on the death certificate and in the clinical records, while some other cause was found in all instances when an autopsy was performed. Death was attributed to cerebral hemorrhage in a significantly higher percentage of cases in which an autopsy was done (26% as compared with 7 and 8%), while some abnormality of the respiratory tract was listed with equal frequency in the three sources of information. It is significant that following autopsy over 60% of the respiratory deaths were found due to aspiration pneumonia. Prematurity and congenital atelectasis formed the largest single group on the anatomical reports (table 10).



Age at death of premature infants. Stippled columns represent numbers of infants whose birth weights were less than 1,500 gm.; solid columns, infants whose birth weights were more than 1,500 gm.

Of further interest to both clinicians and public health workers is the degree of correlation of information regarding the cause of death between the autopsy report, the clinical record and the death certificate. Since information on the death certificate is usually derived from data on the clinical record, there was a high degree of correlation between these two sources of information (65% complete and 25% partial correlation). For the reason just cited, other comparisons represent substantially a correlation of clinical and anatomical diagnosis and they are all proportionately the same. There is no correlation in 40% of the cases, with 30% complete and 30% partial correlation. (Table 11 shows these correlations, where sufficient data were available to make them.) The fact that prematurity with congenital atelectasis only is listed as the cause of death in such a high proportion of the autopsy protocols indicates that either there was no demonstrable cause of death, or that the caliber of the autopsy was such that no cause was found.

TABLE 9.—*Weight of Infants at Birth*

Birth Weight, Gm.	No. of Infants	Per Cent of Total
Not weighed	3 *	
Under 1,000	18	40
1,000-1,499	13	24
1,500-1,999	9	17
2,000-2,499	10	19
Totals	53	100

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* This group consisted of 1 baby, 14.5 cm., 17 weeks' gestation; 1 baby not weighed, 6 months' gestation, and 1 baby not weighed, 5 months' gestation.

COMMENT

After presentation of these clinical data on this series of premature infant deaths, one might logically ask "What are the lessons to be learned and what are the next steps to be taken?" Beck [11] in 1941 reported on the role of the obstetrician in the prevention of premature birth and in the prevention of death in premature infants. Recent studies stressing the influence of antepartum nutrition on the status of the infant at birth and emphasizing antepartum care indicate a potential approach to the prevention of premature birth. Beck and others have also stressed the importance of the management of the pregnant woman with complications. The King County Medical Society Committee on Maternal Welfare [12] has drawn up an excellent set of recommendations for the care of antepartum patients. Consideration must also be given to the use of episiotomy and outlet forceps in the delivery of the infant and the use of vitamin K. The Denver group has recently reported on the importance of nonuse of analgesia and inhalation anesthesia for women in premature labor. It is evident, therefore, that there is a gap between available scientific knowledge and present day obstetric practice.

TABLE 10.—*Cause of Death*

Cause	Death Certificate	Clinical	Anatomical
Prematurity	22 (42%)	19 (46%)	0
Prematurity with atelectasis	15 (30%)	9 (22%)	12 (44%)
Cerebral hemorrhage	4 (8%)	3 (7%)	7 (26%)
Respiratory deaths	12 (22%)	10 (25%)	8 (30%)
Bronchopneumonia	7	5	0
Bronchopneumonia with sepsis	1	0	1
Aspiration pneumonia	2 (16%)	3 (30%)	5 (62%)
Asphyxia	1	1	1
Pulmonary edema, gastroenteritis	1	1	..
Pulmonary hemorrhage	..	..	1
Autopsy done, no information	..	..	2
No autopsy	..	..	21
No clinical diagnosis	..	12	..
Totals	53	53	53

TABLE 11.—*Correlation of Information on Causes of Death (in Cases Where It Was Possible)**

	Source of Information							
	All Three Sources		Clinical and Anatomical		Death Certificate and Anatomical		Death Certificate and Clinical	
Status of Correlation	No.	%	No.	%	No.	%	No.	%
Complete	5	30	6	30	8	30	27	65
	11		12		16		37	
Partial	6	30	6	30	8	30	10	25
None	9	40	8	40	11	40	4	10
Totals	20	100	20	100	27	100	41	100

* No clinical diagnosis in 12 cases and no anatomic diagnosis in 26

So, too, there is a gap in the application of the available pediatric knowledge of the care of the premature infant in the delivery room, in transfer from delivery room to nursery, and in the nursery itself. It seems clear from the material presented that there must be wider dissemination of knowledge regarding the value of proper means of neonatal resuscitation as a lifesaving measure, followed by the training of physicians, including house staff members, so that the recommended procedures may be performed safely. Likewise the cardinal principles of care of the infant—the provision of oxygen, heat, and proper feeding—must be translated from the theoretical stage to practical application. All these facts point up the need of additional joint training of physicians and nurses in the care of the premature infant. Because of the number of small premature infants being cared for wholly by practical nurses, a definition of the role that nonprofessional nurses should play in the care of the premature infant is also needed.

One of the important aspects of care which the hospital with the averaged-sized maternity service finds most difficult to provide is the skilled nursing care required by the premature infant on a round-the-clock basis. It has been estimated that if the premature survival statistics of two large hospitals, which have an adequately trained and supervised nursing staff in their premature units, were applied to all premature infants in New York City, the lives of 500 to 600 infants, or 30% would be saved annually. Therefore, the logical step seems to be the provision of special premature centers where such specialized care may be given. Early transfer of premature infants to such centers immediately after birth should be strongly encouraged, particularly for infants weighing less than 4½ lb. (2,000 gm.) at birth. Each hospital should, of course, be expected to provide safe immediate care for the infant prior to transfer, including the provision of heat and oxygen continuously from birth.

It is realized that some of the data of this report are incomplete because of lack of information on the hospital records. The two greatest areas where information is lacking are in the antepartum history of the mother and in the care of the infant in the delivery room. It is in precisely these two areas that concentrated effort may be expected to produce very fruitful results in the solution of the problem of prematurity. While the status of records is primarily an administrative problem within the hospital, complete information must be available to the medical personnel for study as well as for action. The medical directors of the obstetric and newborn services should share in the responsibility for rectifying the situation.

In New York City, approximately 40% of all infant deaths are autopsied annually, in contrast with an 80 to 90% autopsy record in Chicago. It is evident that further interest must be stimulated in this area, if the potential knowledge gained from the study of individual deaths is to be made available for general application. This problem is not only a quantitative one, but the results of the autopsies show that it is also qualitative. There is a great need for more pathologists interested and trained in neonatal pathology. One group in Brooklyn, under the aegis of Dr. Charles A. Gordon, has already taken the first step by providing a pathologist well trained in neonatal pathology. In New York County, plans are being made by the Infant Mortality Committee of the New York County Medical Society for the formation of a team composed of pathologist, obstetrician and pediatrician who would be available to serve as consultants to Manhattan hospitals to perform autopsies on newborn infants and to review the obstetric and pediatric factors in the care of such infants prior to death.

As a result of this pilot study, plans should be made to carry on a continuous investigation of deaths among premature infants in a manner similar to that of the Maternal Mortality Committees. Continuous joint investigations by the Medical Society and Health Department have been successfully carried on for a period of years in Chicago,[13] Philadelphia [14] and Maryland,[15] and have led to the development of joint programs for action.

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[11] Beck, A. C.: How Can the Obstetrician Aid in Reducing the Mortality of Prematurely Born Infants, Am. J. Obst. & Gynec. 42: 355, 1941.

[12] Minimum Standards for Prenatal Care, prepared by the Maternal Welfare Committee of the King County Medical Society, Seattle, C. A. Gordon, Chairman.

SUMMARY

This report describes the method used and the findings in a pilot study of 55 premature infants who died in Brooklyn in February, 1949. Certain deficiencies in the recording of information and in the care given to maternity patients and their prematurely born infants are discussed. It is hoped, as a result of this study, that methods will be developed to evaluate and improve such care on a continuing basis.

1313 Bedford Ave.

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13. Lander, H.: Personal communication to the authors.
14. Rose, E. K.; Gowing, J.; Hartley, H. H., and Swift, A. D.: Further Neonatal Salvage, Pennsylvania M. J. 51: 645, 1948.
15. Davens, E.: Personal communication to the authors.

CHICAGO PLAN FOR CARE OF PREMATURE INFANTS

Julius H. Hess, M.D., Chicago

The importance of proper care for premature infants has been slow in being recognized. While my interest in this phase of the practice of medicine goes back to 1906, it was not until 1922 that a premature infant station of size was finally established in the Sarah Morris Hospital of Michael Reese Hospital in Chicago. This station was willing to accept premature infants from all sources, whether born in a home, at Michael Reese Hospital or at some other hospital where necessary equipment and nursing care were not available. The success in establishing and operating our premature station has been due to the efforts and interests of the Infants' Aid Society of Chicago, a group of philanthropic women now numbering over 1,100 active members, who have supplied most of the equipment for the station, have provided care for a high percentage of our charitable and semicharitable cases, and have established an endowment fund, the income from which may be used only for the employment of nurses in the station or the procurement of breast milk in necessary instances. These activities of the Infants' Aid Society have been given in some detail as a helpful suggestion to other institutions desiring to have a premature station.

In 1922, when our premature infant station was opened, it was obvious that infants born in homes or other hospitals could not be accepted into the clean newborn nursery in Michael Reese Hospital and for this reason the station was located in the Sarah Morris Hospital for Children. The possibilities of the station were slow in being recognized by the medical profession, and the wisdom of opening such a station in a hospital for children was not immediately admitted, as evidenced by the fact that only 19 patients were accepted for care in 1922, 28 in 1923, 47 in 1924, 66 in 1925, and 106 in 1926. From that point on the admissions increased until 492 premature infants were admitted in 1947, 488 in 1948, and 435 in 1949.

By 1932 the demands on the station had reached a point where it could no longer provide for all the applicants who were referred for care, and the small station previously established at Cook County Hospital was enlarged. At the present time the Sarah Morris Hospital station has a maximum bed capacity of 35, and the Cook County Hospital station, a somewhat larger capacity. From 1932 to 1934 these two stations were operated independently but with encouragement from the Chicago Board of Health.

In 1934 the city-wide plan for the care of premature infants was inaugurated, and the Chicago Board of Health and the premature stations at Sarah Morris and Cook County Hospitals combined their facilities for the care of these infants in Chicago and Cook County. The seven basic principles which were established at our station and which are considered necessary to the operation of a qualified premature infant station were included in the Chicago city-wide plan and are discussed briefly.

1. It is obvious that to be of service to the infant the Board of Health must know of its birth. Therefore, in the city of Chicago, all premature births must be reported to the Board of Health by telephone within one hour after delivery, followed by written confirmation within 24 hours. As soon as the report of a premature birth is made, the Board of Health contacts the physician, if one has been in attendance, for his permission to transport the infant to a premature station if such request was not made at the time of reporting the birth. All transportation of these babies, whether from a home to a hospital or from one hospital to another, is done by the Board of Health in a specially designed and equipped ambulance. The nurse who accompanies the ambulance has had special training in the handling of the infant during transportation, especially in emergency treatment. If the baby is in another hospital and is in poor condition, it is suggested that it be kept in an incubator and given oxygen until its condition improves, waiting from 8 to 24 hours before removal to a premature station. If the baby is born at home and is in poor condition, oxygen is administered by the nurse from the Board of Health, and the infant remains in a warm crib supplied by the Board of Health until there is definite improvement in respiration and circulation and is then transported to a premature station. Regardless of where the baby is born, it must be protected against chilling from the time of delivery until transported to a special station. Oxygen is given, at least temporarily, to all premature infants received in our station. Any patient brought to the station from outside is examined only for cyanosis, trauma, and congenital deformities at the time of admission,

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Presented before the Kings County Medical Society, Brooklyn, April 17, 1950.

From the Sarah Morris Hospital for Children of Michael Reese Hospital, Chicago.

Professor Emeritus, Department of Pediatrics, University of Illinois College of Medicine; Senior Attending Pediatrician, Michael Reese Hospital, and Consulting Pediatrician of Cook County Hospital.

limiting exposure to a minimum. Thorough physical examination is delayed until the infant's general condition warrants such procedure.

2. The premature infant stations are supplied with incubators or some type of heated beds, as well as special equipment for oxygen and other emergency therapy.

3. Premature infant stations must have nursing and medical care by trained personnel. It has at all times been our contention that skilled nursing care is the prime essential in reducing premature infant mortality. Best results are obtained if well-trained graduate nurses are in charge. The supervising nurse of the station should be responsible to the pediatrician and should, therefore, be pediatrics-minded. All student nurses taking care of premature babies must receive adequate instruction and must be closely supervised. For the 24-hour period, the nursing personnel should average one nurse for every two to four infants, the number of nurses required depending upon whether graduate or undergraduate nurses are in charge of these babies. In our station there are also nursery maids, who have been trained for one year in the care of newborn and young infants. They spend part of their training period in the obstetric nursery and part in the children's hospital in which the premature station is located. Since they remain in the station for longer periods than the average nurse in training, the personnel is changed less frequently, which is a great advantage, decreasing the amount of personnel instruction necessary.

It is my belief that care of premature infants should be assigned to the pediatric department and that a long period of service in the station should be considered desirable for the pediatrician and resident as compared with the usual short-term rotation service. It has been our experience that an inadequately trained house staff is soon evidenced by increased morbidity and mortality in the station.

4. Breast milk for the infants in our station is supplied or obtained from wet nurses and visiting mothers. The mothers of the babies who are patients in the station express their milk at home and send it to the hospital to be used. The Chicago Board of Health maintains a breast milk station which makes breast milk available without cost to the hospital when it is needed to supplement our own supply.

5. A field nursing service has been developed for instruction of the mothers in the care of infants following their graduation from the station. Special attention is also given to the promotion of breast milk secretion. Breast milk in the home reduces the number of hospital days, and most mothers can be taught hand expression. Psychology plays an important role here.

6. A simple type of heated bed is loaned to graduates for use in the home. This is of great value in reducing the number of cases returned to the hospital due to acute illnesses after graduation from the station.

7. An outpatient clinic is maintained for instruction of mothers and for the care and supervision of graduates. It was recognized early in our station that such a clinic was most desirable because many of our patients come from families in the lower income bracket and frequently do not have private physicians. Many times the private physician in attendance will request that the baby be returned to the clinic during the early months after graduation. It is important that the follow-up clinic have as its objective good physical growth and mental development in the child, factors which are as important as a low mortality and morbidity rate. The increasing importance of our outpatient clinic is shown in the following statistics:

	1946	1947	1948	1949
New cases	111	101	135	145
Individuals in year.....	339	408	376	450
Visits	1,315	1,576	1,827	2,644
Visits per individual....	3.66	3.86	4.86	5.87

Illinois, through its Department of Public Health in Springfield, has a well-defined program for the care of premature infants. Three stations are now in operation outside Cook County, and plans for six more are being completed. Through the use of premature centers that meet the standards of location, space, physical equipment, and specialized medical and nursing care, the Illinois Department of Public Health provides hospital and nursing care not available in all localities for the premature infants of all economic levels, gives economic assistance to families who lack the necessary funds for specialized medical service in caring for their premature infants, and thus provides a means to aid in diminishing mortality attributable to prematurity. Through grants of funds from the Children's Bureau the centers have been paid for hospitalization of infants who would otherwise be denied this special care. Similar financial arrangements have enabled the Department of Public Health to pay, where necessary, for the ambulance transportation of infants from outlying areas of the state to the centers. Funds have also been made available for providing special training for nurses serving in these centers. Integration of the phase of hospital care with later home care has been accomplished through the cooperation of local health departments and public health nurses.

To meet the needs of and the increasing demands for trained personnel, voluntary training centers must be established throughout the United States. Michael Reese Hospital has encouraged a program of special training for physicians in the care of the premature infant, and many physicians, supervisors of state and city boards of health, and supervisors of individual hospitals have taken advantage of an opportunity for observation in our station. A six-weeks' course for nurses is given at the Sarah Morris Hospital premature station, covering not only the theoretical but also the practical application of care of the premature baby, the latter including experience in the station, in the outpatient department, and on home visitation. Various training programs for nurses are being offered in other qualified centers, such as the Harriet Lane Home of the Johns Hopkins Hospital in Baltimore; Columbia-Presbyterian Medical Center and New York Hospital-Cornell Medical Center in New York; Cook County Hospital premature station, Chicago; Los Angeles General Hospital; Colorado General Hospital, Denver; Oklahoma University Hospital, Oklahoma City; Charity Hospital, New Orleans, and the Margaret Hague Hospital in Jersey City. It is unfortunate that there are so few training centers in this country and that these are so limited in the number of nurses that can be trained. It is my belief that nurses must be offered this type of training at the expense either of the state or the individual hospital to which they will return at the completion of the training period.

Having become interested in state-wide programs for the care of premature infants as they are carried out in this country, in 1949 I wrote to the Divisions of Maternal and Child Health in all of the states as well as Alaska and Hawaii in an effort to determine what progress had been made in those localities. The replies received from 44 states and the two territories indicated as many variations in the program as there are Divisions of Maternal and Child Health. Although no state has established a fully satisfactory state-wide program, nevertheless, much progress has been made.

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NATION-WIDE PLAN FOR REDUCTION OF PREMATURE MORTALITY

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The federal grants-in-aid system for health purposes is based on the principle that problems and resources vary widely and that each state moves at its own speed. An excellent study recently reported indicates that Kings County was ready to move forward in an important way in tackling the problems of saving the lives of premature babies before any of the other counties in the Greater New York area. So I interpret "a nation-wide plan" to mean a statement of general principles, the application of which will vary widely from one state or community to another.

Infant mortality since 1915 has been reduced two-thirds, from 100 deaths per 1,000 live births in 1915 to 31 deaths in 1949. Improved sanitary conditions (such as the elimination of the house fly and pasteurization of milk), improved living standards, better nutrition, and improved medical practice have played a part in this reduction.

Certain specific steps can be identified in the downward progress of infant mortality. First came the realization that the extent of the problem was not known. For example, when the federal Children's Bureau was organized in 1912, no one knew how many infants were born or how many died in the first year of life. A campaign for birth and death registration followed. Then came studies by physicians to determine why these babies died and which deaths were preventable. Out of the knowledge gained through these two approaches to the problem, practical steps were taken. Doctors and nurses received additional training, emphasizing what they must do not only to care for the sick but also to prevent the conditions which lead to death; the public was told what it needed to do; public health departments and hospitals and other community groups organized special services to tackle the problem.

As time went on, practice was changed to take into account what scientific research was developing, such as better methods for pasteurization of milk, newer knowledge of nutrition and food production, and more effective health education.

The problem of prematurity presents the same sort of challenge that infant mortality did 35 years ago, and I believe that the same kinds of activities must be undertaken if we are to be as successful in reducing the deaths associated with premature birth. First, we need to know the extent of the problem. New York city, for example, knows its incidence of premature birth and knows its mortality rates, because for some 10 years birth weight has been included on birth certificates filed in the city. But for much of the rest of the United States this is not true. Even the definition of a prematurely born infant has varied from hospital to hospital and from area to area. Nineteen-fifty marks the first year in which birth weight, the most generally agreed single criterion of prematurity, will appear on birth certificates in all of the states.

States and communities need to be encouraged to analyze the facts in their own localities. Recording birth weight on all birth certificates will tell how many prematures there are and how many survive.

Another step is to analyze deaths occurring in a local area with a view to finding out "why." This is the sort of pioneering job that was done in Kings County. The County Medical Society worked hand in hand with the local health department to uncover the facts. Nurses and doctors worked together to find the weakness, the gaps in service that made the difference between life and death. They have results which point to the corrective and productive measures to be taken. Such studies are a first and important step in any national drive to reduce deaths associated with prematurity. They focus the attention of the profession on the problem. High-lighting of what needs to be done next has been essential in every lifesaving effort made in this country, and it is important that physicians and nurses do this part of the job themselves.

Although not all states have complete figures, there is considerable knowledge of the extent of the national problem. From what doctors record on death certificates as the primary cause of death, we know that premature birth is the leading cause of infant death today, and that the numbers of such deaths are sufficiently large to make prematurity the eighth cause of death among persons of all ages. How many persons are concerned that in 1947 physicians declared that prematurity was the chief cause of death for 41,000 citizens of the United States? An epidemic of disease that involved that number of persons would call forth the concerted action of all the nation's doctors and nurses, of national, state and local governments, and of citizens' groups everywhere. Why should we do less because the cause of death is premature birth? Physicians know that not all these deaths can be prevented with the scientific knowledge at hand and realize

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From the Children's Bureau, Federal Security Agency.

Presented before the Kings County Medical Society and the Academy of Medicine of Brooklyn, April 17, 1950.

that probably there will always be an irreducible minimum representing certain genetic and developmental failures that cannot be saved. The time has come for a nation-wide effort to see that every mother gets the kind of care during her pregnancy that improves her chances for being delivered of a full-term infant, and that every prematurely born infant gets a chance at those measures which have proven effective in saving life.

Let us see what factors influence survival and what can be done about them. The first generally recognized and scientifically verified fact is that the smaller the baby the less his chance for survival. Figures for New York city for all babies born prematurely in 1947 (not just those cared for in certain hospitals which give an incomplete picture) showed, for example, that the mortality rate in babies weighing less than 2,500 gm. (5½ lb.) was 13 times that of babies weighing more than 2,500 gm.

Mortality rates reported for different groups weighing less than 2,500 gm. vary widely. To make any valid comparisons, it is necessary to know the composition of the group. Obviously if a larger proportion of small babies are included, rates will be higher. This has long been recognized, but the recent analyses of Taylor, Eastman and others indicate that other factors are at work. In the two-year-old Colorado program (one of the most comprehensive programs undertaken in this country), Dr. Taylor found that in every weight group there is a significantly greater mortality for infants born from abnormal pregnancies or deliveries, the difference in a group of 477 infants being 8% for the "normals" and 37% for the "abnormals." In Eastman's study premature birth occurred in 24.9% of his patients who had poor prenatal care or none, as compared with 7.8% of those who had good care.

This again points to the importance of the obstetrical factor in this problem of reducing deaths associated with prematurity. Actually herein lies, perhaps, our greatest job and one that is all too often overlooked by those who advocate so-called premature programs. It is the general practitioner who attends most women during pregnancy and delivery. The first job is to put into his hands the tools necessary to enable as many women as possible to carry their fetuses safely to term and through delivery.

We must not forget, either, the several important studies that have conclusively shown that the woman who eats an inadequate diet during her pregnancy is more likely to have a premature infant. Although too few doctors take cognizance of this fact as they provide care for women during pregnancy, all doctors have recognized that the social and economic conditions under which the pregnant woman lives influence the outcome of her pregnancy as directly as the type and amount of medical care she receives.

The second part of the job is to bring to the care of those prematurely born the best that modern pediatrics has been able to evolve. The guiding principle is simple enough—to give the infant the help he needs to meet the hazards of life as well as or better than his full-term sibling. So come the much publicized incubators, ambulances, oxygen, transfusions, and specialized premature centers. These are the devices that have so far proved of value in saving lives. But one of the questions we have not answered is how to organize services to bring the best care to all babies? How much can the general practitioner and the small hospital carry by themselves? What training do they need to carry the load? When should they have and how best can they secure the additional expert help they need? What is the best use to be made of the "premature center"? The trend seems to be toward having every nursery and every doctor equipped to care for the larger and healthier premature and to develop some kind of regionalized service to bring consultation and expert care to those cases whose needs cannot be met by the general practitioner or the small hospital. The Children's Bureau in cooperation with some state health departments and the Academy of Pediatrics is now planning studies that may give some answers to this problem of getting the most effective care to all prematures.

These are some of the important trends and facts of the problem of prematurity from the medical point of view. One additional fact often overlooked is that the public has an enormous interest in the subject.

What are various parts of the country doing about the problem of premature babies? Although different states are attacking this problem in different ways, a basic pattern is beginning to emerge. Most activities are guided in part by state and local health departments, and are financed in part by the federal grants-in-aid programs provided for under the maternal and child health provisions of the Social Security Act. The following activities are usually included: 1. Training of nurses and physicians in the care of premature infants. This is a widespread activity. 2. Development of hospital standards and licensing, emphasizing facilities and personnel for proper care of premature infants. 3. Consultation to hospitals (principally by nursing consultants so far) in an effort to raise the standards of care for full-term as well as premature infants. 4. Loan of incubators, together with consultation regarding their use. 5. Transportation of premature infants to premature infant centers. 6. Development of premature infant centers and purchase of hospital care for them. 7. Measures designed to prevent premature labor, such as: more and better prenatal services, with emphasis on diagnosis and the importance of adequate nutrition; obstetric consultation for complications during pregnancy; hospitalization for complicated pregnancy; and obstetric consultation aimed toward improving the management of the mother's labor and delivery in cases of premature birth (since most of the premature infant deaths occur on the first day of life).

Most state health departments are carrying one or more such activities. Some have programs which include virtually all of them. Many have made equipment, especially incubators, available to hospitals. Many have been more interested in saving the lives of those prematurely born than in the fundamental task of improving the quality of obstetric care in order to delay such births until a safer period. Some states have done a remarkable job in the latter area. In Virginia, for example, any physician faced with a complication of pregnancy can have an obstetrician help carry the patient through delivery, and the state health department pays the bill. Such programs are being planned for other states as soon as funds become available.

Within the last few years, "centers" have been set up in Colorado, Hawaii, Illinois, Louisiana, Maryland, New York, North Carolina, Tennessee, and West Virginia, and other states have plans for centers as soon as funds become available. What constitutes a center for premature babies? Space is usually allotted in the hospital separate from the nursery for the full-term babies. The set-up does not have to be elaborate; many are very simple. All centers for premature babies concentrate on (1) providing skilled medical and nursing care with the least possible amount of handling; (2) maintaining the baby's normal body temperature, therefore the incubator; (3) safeguarding the baby against infection; and (4) adequate feeding.

Many centers concentrate on care for the smallest babies. Provision is usually made for the safe transport of the baby to and from the center. And the better programs also concentrate on improving the obstetrical care of the mother during pregnancy and delivery. It has been quite commonly observed that these measures lead to better care for all babies.

Often the care needed by the premature baby is long-time, expensive care that is beyond the ability of the average family to pay. In the West Virginia program, for example, the average cost of care for 145 infants was $341.70 per infant. In the North Carolina program the average cost of care for 441 infants was $411.48. These figures, however, do not show the wide range in costs for care of infants in different weight groups. Neither do they give an adequate picture of the expenses faced by a family having a premature infant.

The smaller the baby, the greater is the cost of care. For example, in Colorado, among 29 babies in the weight group 1,000 to 1,499 gm., the average cost of care was $827 per infant, but for 25 per cent of the infants in the group the cost exceeded $1,000. For 53 babies in the weight group 1,500 to 1,999 gm., the average cost was $572. For 81 infants weighing 2,000 to 2,499 gm., the average cost per infant was $199.

About 50 per cent of the Colorado infants required hospitalization costing $400 or more each. The social data on the first 175 patients in the Colorado program showed, and a committee of the state medical society agreed, that 174 of these families could not pay the costs of care.

The states are paying the hospitals, for the most part, the average reimbursable cost. This is high. In West Virginia, for example, the state agency pays the hospital $18.45 a day for the care of the premature infant. In Colorado the per diem cost is about $25.00; the state agency pays half of this, and the other half is paid through state appropriations to the hospital.

What has been done in the United States so far in a national program for premature infants is that a few hesitant steps in the right direction have been taken in many states. There is evidence of a great interest on the part of doctors, nurses and the public in moving ahead more rapidly. The studies of the state academies of pediatrics are providing a strong stimulus to the development of services for premature infants. Many of them are recommending that health departments emphasize such services. Thirty-three state health departments reported recently to the Children's bureau that they would develop or expand programs for premature infants in their states, if additional funds became available.

The development of services for the care of premature infants on a nationwide basis will be speeded up by the establishment of several well-developed training programs. The problem of training is complicated by the fact that different personnel need different kinds of training. For example, a number of articles have recently appeared dealing with the fact that what happens to a premature infant during delivery directly affects his chance of survival. The choice of the anesthesia and the type of delivery may be extremely important. As the Kings County study has so ably shown, we can no longer assume that two 1,500 gm. prematures are alike because they weigh the same. They may be vastly different in their potential for living because of the experience they have just gone through. Training in anesthesia and obstetrics for the general practitioner is a part of a so-called premature program that is often over-looked. The general practitioner is eagerly looking for ways of keeping up on the latest advances and welcomes short, intensive periods of training, or refresher courses on obstetrics, which would include the immediate and emergency care of infants under 2,500 gm.

The premature program is truly a medical care program in high gear. The care of the premature infant is always an emergency. The timing of the services and their coordination spells survival or death to the baby. Emergency care at birth, transportation, care in the hospital, careful planning on discharge, continuing care in the home and follow-up must all merge into a smooth-flowing service to meet the needs of the individual baby and his family.

This can be achieved only if there is continuous planning by all the people working in the program. Experience has shown that one of the ways to accomplish such planning is for the people who are concerned to get together regularly to discuss, criticize, and revamp the services in light of their experiences. What are the difficulties encountered? Where does the program bog down? Are there personnel who need further training? Do health officials and physicians understand and use the service? Do other workers in closely related services use it? Do the parents know about and seek the services? All of these questions must be answered if premature infants are to receive the care they need to survive.

The emergency character of the program puts a premium on well-coordinated planning, both in and out of the hospital, for actual care, and in the community for supplementary services and support. State and local health agencies must co-operate with medical, nursing, and welfare agencies if services are to be complete and well-rounded. A public health nurse may be needed to go into the home when a premature infant is being discharged to it. The help of a child welfare worker may be needed to find a foster home, or to help parents meet their problems, or to help the unmarried mother plan for her child. "Aid to dependent children" may need to be used as a financial resource for helping the child.

State and local advisory committees including citizens and members of the various professions and agencies, both public and voluntary, are needed to help plan the program and arouse public interest in it. Only as the people and the community appreciate what the problem of caring for these babies means can they give the program their support.

It is with great pride, of course, that I point out that today in New York city everything that is needed to tackle this problem of prematurity is available. The program is not yet in high gear and has not yet realized its fine potentialities in lifesaving, though I would hazard the guess that the recent sharper reduction in infant mortality recorded here is in no small measure associated with the excellent program that has taken shape in these postwar years. Facts and figures now become available from the health department. Some facilities for training doctors and nurses in modern obstetric and pediatric care are now available, though probably many of those who need it most do not avail themselves of the opportunities. Almost all births occur in hospitals, and an increasing number of these hospitals are equipped and staffed to give the kind of care that will help carry the pregnant woman to term and to care for the baby properly if it is born prematurely. A few excellent premature centers, concentrating their attention on the babies most in need of care, have been established. Excellent transportation facilities are provided. Plans have been made to help pay for care for those who cannot afford to pay for it themselves. The Children's Bureau has realized that providing funds to pay for hospital care is essential to a really effective program and congratulate New York city in leading the country in these plans. The city has also continued studies, active studies by the doctors themselves, of all deaths of mothers and, recently, of prematures. In such activities Brooklyn has done and is doing more than the other boroughs. The projected study of the Academy of Medicine should prove another milestone for the city at large. Basic research in the causes of premature labor and in better ways of caring for premature infants is going on in the educational institutions there. The public is interested and willing to support further endeavors. These are the elements of a good program as seen today. To be sure, not all women, even in New York city, get good prenatal care now, or the best of care during delivery, or the food they need during pregnancy. Many infants still die today in hospitals of that city because they do not get the care they should. A modern and effective licensing system for hospitals (comparable to those in operation elsewhere) still needs support. More attention needs to be paid to the obstetrical aspects and to prevention. Better educational programs for parents and professional groups need to be developed. In other words, New York city has a superb opportunity to lead the entire nation in a program of saving infant lives just as it has led in developing many other public health programs.

However, leadership cannot be maintained without continued and constant attention to planning the many details that such a complicated program requires. There must be constant vigilance if no essential part is to be allowed to lag in actual operation.

To return to the national picture, we in the Children's Bureau have reviewed the situation very carefully in the past six months. We believe the time has come to make a concerted drive to save the lives that are being lost today in the United States because of premature birth. Each community will and should tackle the job in the way best suited to its own needs and in accord with its available facilities and manpower. But every community should move as rapidly as it can toward a comprehensive program of service. Such a program should strive toward eight goals.

1. It should use first-rate facilities, staffed with well-trained personnel.
2. It should provide consultation services to hospitals and doctors.
3. It should include measures designed to prevent premature labor.
4. It should provide transportation for, and pay for hospitalization of, premature infants when necessary.
5. It should take cognizance of the important role of the general practitioner and bring to him the help he needs to carry on.
6. It should plan with the family for adequate care for the premature after discharge from the hospital.
7. It should plan for continuing evaluation of activities and results as well as continuing education of the public to use the services available.
8. It should provide for team work in planning and operating the program.

Not all community programs can engage in research. A national program would be incomplete if it did not envisage greatly expanded basic research activities designed to discover more effective ways of preventing prematurity and thus contribute to reducing this problem to easily manageable proportions.

In every community one step which can be taken immediately is a co-operative study by a county or state medical society and the local or state department of health to discover the facts concerning the causes for and the possibilities of preventing deaths associated with premature birth. This might well be the opening of another large campaign to save infant lives in this country.

Chemical Carcinogenesis.—Until recently, our picture of the carcinogenic process envisaged damage of the normal growth mechanism as the primary effect. At present (at least so far as the mustards are concerned, we now picture damage to the chromosome by direct combination with genetic material, followed maybe by the generation of a new and self-duplicating chemical and genetic rearrangement. . . . Compounds . . . have been shown . . . to have a varying degree of preferential action at certain specific chromosome regions, especially the so-called heterochromatic regions known to have characteristic chemical and genetic properties, the latter associated not so much with Mendelian inheritance as with the quantitative inheritance of growth-rate and differentiation features and their mutation. . . . There would appear to be—and for the first time—some prospect (if only a prospect) of correlating the chemical properties of a given carcinogen with the chemical properties of specific chromosome regions, with the resultant cytological effects, and with the genetic consequences to the cell which thus ensue.—A. Haddow, M.D., Advances in the Study of Chemical Carcinogenesis, Proceedings of the Royal Society of Medicine, April, 1951.

BIRTH WEIGHT AND LENGTH OF GESTATION WITH RELATION TO PREMATURITY

Matthew Taback, A.M., Baltimore

Newborn babies and infants under 1 year of age have been among those to benefit most from advances in medical science and the efforts of public health agencies during the first half of this century. Reviewing the Baltimore City vital statistics reports at the beginning of the century, one finds that the infant mortality rate was approximately 200 infant deaths per 1,000 live births. Simply stated, this means that in 1900 of every 100 babies delivered alive 20 failed to reach their first birthday. The loss of human life and wasted pregnancy occasioned by the existence of such a high infant mortality rate are difficult to comprehend. Principal causes of infant deaths in 1900 were diarrhea, pneumonia, acute communicable diseases, prematurity and congenital malformations. A review of present day records indicates that the infant mortality rate has decreased at an unbelievable rate and stands now at about 30 infant deaths per 1,000 live births, an 85 per cent decline since 1900. Principal causes of infant deaths today are prematurity, congenital malformations and birth injury.

With a firm belief that further savings of human life can be achieved, the Children's Bureau has requested local registration offices to include inquiries on the birth certificate to provide data that will assist in the study of factors associated with prematurity, congenital malformations and complications of pregnancy. Therefore, starting Jan. 1, 1949, the birth records in Baltimore City have included a medical data section, which is completed by the attending physician. This section consists of the following items: length of pregnancy, birth weight, complications of pregnancy and labor, operations for delivery and a description of birth injuries or congenital malformations when present.

In view of the completeness of the data submitted by attending physicians, it was decided to analyze the material available on birth weight and length of gestation in order to study some of the relations between maternal factors and the prevalence of prematurity and to look into the relation that exists between length of gestation and birth weight.

NATURE OF DATA

The birth records for resident babies born during the period January to June 1949, described below as sample A, were used in the current study. Statements concerning birth weight are received either in pounds and ounces or in grams. All statements are coded into 500 Gm., categories. Length of gestation is reported in weeks, and the information is used in this form. Occasionally, reports are received in terms of months; these statements are then revised so that, in the coding process, the total period of gestation is reported in terms of weeks instead of months.

A total of 9,709 babies were born during the study period. The birth records of 9,523 contained statements concerning birth weight, and, of these, 9,392 also had data concerning length of gestation. Thus, 97 per cent of all birth records processed had completed statements in respect to length of gestation and birth weight.

Owing to bias found on the analysis of statements concerning length of gestation, a sample of clinical records was studied. These records were drawn from three subsamples:

Sample	Description	Number of Cases	Race
B	Outpatient service of a teaching hospital....	419	White
C	Private service of an obstetrician............	243	White
D	Antepartum service of the Health Department	200	Negro

Only cases active during the period 1947-1949 and meeting the two criteria which follow were considered: first day of last menstrual period specified and pregnancy terminating in delivery of a single liveborn baby.

DEFINITIONS

Prematurity, when used in this study, follows the definition recommended by the American Academy of Pediatrics.[1] "A premature infant is one who weighs 2,500 grams or less at birth regardless of period of gestation." Because of the manner in which data were processed, prematurity in this analysis refers to babies with birth weight less than 2,500 Gm.

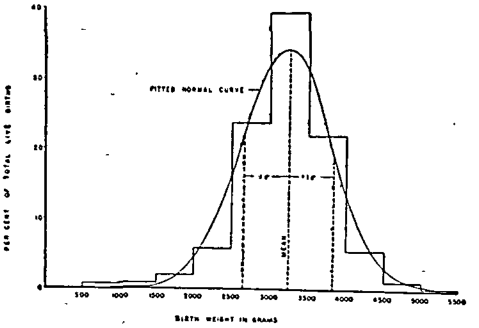

Chart 1.—Resident live births by birth weight, all races, Baltimore City, January-June 1949.

It must be recognized that, although the definition proposed by the Academy has simplicity and objectivity, it is highly problematical whether such a definition can carry with it much validity when one considers the wide somatic variation that humans can take without any effect on their physiological responses. The deficiency in this definition will be further discussed below.

Length of gestation refers to the interval that intervenes between the first day of the last menstrual period (considered the beginning of gestation) and the date of birth. This definition is the one most commonly applied in the literature available on this subject.[2]

Director, Bureau of Biostatistics, Baltimore City Health Department.

Presented before the Public Health Conference on Records and Statistics, Washington, D. C., April 24, 1950.

Dr. W. Thurber Fales, Director, Statistical Section, Baltimore City Health Department assisted in the design of this study.

This paper is one of a series of quarterly studies prepared by the Bureau of Biostatistics dealing with quantitative aspects of current medical problems.

[1] American Academy of Pediatrics: Round Table Discussion on Prematurity, J. Pediat. 8: 104 (Jan.) 1936.

[2] Anderson, N. A.; Brown, E. W., and Lyon, R. A.: Causes of Prematurity: Influence of Race and Sex on Duration of Gestation and Weight at Birth, Am. J. Dis. Child. 65: 523 (April) 1943.

FINDINGS

Birth Weight.—The birth weight distribution for babies born during the first half of 1949 (sample A) is given in table 1 and shown in chart 1. Distributions are also given for race segments and for single and plural births.

Examination of chart 1 indicates that newborn babies show wide variation in weight at birth. The distribution approaches symmetry and is centered at 3,204 Gm., the mean birth weight, with a standard deviation of 579 Gm. The curve shows greater concentration at the center than a normal distribution and is skewed in the lower birth weights. Mean birth weights for white and for Negro liveborn babies are 3,244 and 3,116 respectively, the difference being statistically significant.

TABLE 1.—*Resident Live Births by Birth Weight According to Race and Plurality, Baltimore City, January-June 1949*

		Birth Weight, Gm.										
Group	Total	500 to 999	1,000 to 1,499	1,500 to 1,999	2,000 to 2,499	2,500 to 2,999	3,000 to 3,499	3,500 to 3,999	4,000 to 4,499	4,500 to 4,999	5,000 and Over	Below 2,500
						Number						
Total	9,523	56	64	168	555	2,215	3,750	2,079	528	90	18	843
White	6,526	29	29	102	323	1,427	2,610	1,545	384	65	12	483
Nonwhite	2,997	27	35	66	232	788	1,140	534	144	25	6	360
Single	9,299	46	52	133	490	2,143	3,722	2,077	528	90	18	721
Plural	224	10	12	35	65	72	28	2	...	..	..	122
						Per Cent						
Total	100.0	0.6	0.7	1.8	5.8	23.3	39.4	21.8	5.5	0.9	0.2	8.9
White	100.0	0.4	0.4	1.6	4.9	21.9	40.0	23.7	5.9	1.0	0.2	7.4
Nonwhite	100.0	0.9	1.2	2.2	7.7	26.3	38.0	17.8	4.8	0.8	0.2	12.0
Single	100.0	0.5	0.6	1.4	5.3	23.0	40.0	22.3	5.7	1.0	0.2	7.8
Plural	100.0	4.5	5.4	15.6	29.0	32.1	12.5	0.9	...	...	...	54.3

TABLE 2.—*Prematurity Ratios* for Live Births by Maternal Age, Birth Order and Race, Baltimore City, January-June 1949*

	Birth Order											
	All Births			1			2-3			4 and Over		
		Premature			Premature			Premature			Premature	
Age Group	Total Births	Number	Per Cent	Total Births	Number	Per Cent	Total Births	Number	Per Cent	Total Births	Number	Per Cent
						All Races						
All Ages	9,523	843	8.9	3,417	302	8.8	4,256	361	8.5	1,850	180	9.7
Under 15	44	10	22.7	44	10	22.7	.....	...	...	.....	...	...
15-19	1,349	161	11.9	920	99	10.8	407	56	13.8	22	6	27.3
20-24	3,150	270	8.6	1,381	96	7.0	1,441	135	9.4	328	39	11.9
25-29	2,703	204	7.6	731	57	7.8	1,401	102	7.3	571	45	7.9
30-34	1,430	118	8.3	247	25	10.1	682	46	6.7	501	47	9.4
35-39	681	65	9.5	75	12	16.0	276	20	7.2	330	33	10.0
40 and over	166	15	9.0	19	3	15.8	49	2	4.1	98	10	10.2
						White						
All Ages	6,526	483	7.4	2,572	185	7.2	3,066	221	7.2	888	77	8.7
Under 15	4	...	...	4	...	...	.....	...	...	.....	...	...
15-19	618	50	8.1	497	38	7.6	119	12	10.1	2	...	...
20-24	2,173	159	7.3	1,148	69	6.0	931	80	8.6	94	10	10.6
25-29	2,043	141	6.9	634	47	7.4	1,159	71	6.1	250	23	9.2
30-34	1,087	85	7.8	208	19	9.1	583	41	7.0	296	25	8.4
35-39	482	38	7.9	65	9	13.8	230	15	6.5	187	14	7.5
40 and over	119	10	8.4	16	3	18.8	44	2	4.5	59	5	8.5
						Nonwhite						
All Ages	2,997	360	12.0	845	117	13.8	1,190	140	11.8	962	103	10.7
Under 15	40	10	25.0	40	10	25.0	.....	...	...	.....	...	...
15-19	731	111	15.2	423	61	14.4	288	44	15.3	20	6	30.0
20-24	977	111	11.4	233	27	11.6	510	55	10.8	234	29	12.4
25-29	660	63	9.5	97	10	10.3	242	31	12.8	321	22	6.9
30-34	343	33	9.6	39	6	15.4	99	5	5.1	205	22	10.7
35-39	199	27	13.6	10	3	30.0	46	5	10.9	143	19	13.3
40 and over	47	5	10.6	3	...	...	5	...	...	39	5	12.8

* The prematurity ratio is the percentage relation of premature births to total births.

When the prevalence of premature babies (under 2,500 Gm.) is considered, one finds that 8.9 per cent of all babies fall in this category. Negro babies, when weight alone is considered, apparently have a prematurity ratio of 12.0 as compared with 7.4 for white babies. Whether this is indicative of a greater prevalence of prematurity among Negro babies has been questioned by recent investigators. Peckham,[3] in a statistical study of prematurity, describes the neonatal mortality experience for liveborn infants by birth weight and race. White babies, weighing 2,500 Gm. at birth, were subject to a 4.7 per cent neonatal mortality rate. Negro babies at this weight had a more favorable experience, the neonatal rate approximating 2.2 per cent and reaching 4.7 per cent at about 2,320 Gm. Accepting the neonatal rate as a criterion of physiological performance, Negro babies of 2,320 Gm. are equivalent to white babies of 2,500 Gm. weight. When the prevalence of Negro liveborn infants with birth weights less than 2,350 is determined, it is found that the index of prematurity shown in table 1 as 12.0 per cent is reduced to 7.2 per cent.

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[3] Peckham, C. H.: Statistical Studies on Prematurity: I. Incidence of Prematurity and Effect of Certain Obstetric Factors, J. Pediat. **13**: 474-483 (Oct.) 1938; Statistical Studies on Prematurity: II. Mortality of Prematurity and Effect of Certain Obstetric Factors, ibid. **13**: 483-497 (Oct.) 1938.

TABLE 3.—*Distribution of Single Live Births by Length of Gestation According to Sample*

Length of Gestation, Wk.	Sample A		Samples B, C and D		Sample B		Sample C		Sample D	
	Health Department Birth Records		Total Clinical Records		Health Department Antepartum Service		Outpatient Service		Private Service of Obstetrician	
	Number	Cumulative Per Cent	Number	Cumulative Per Cent	Number	Cumulative Per Cent	Number	Cumulative Per Cent	Number	Cumulative Per Cent
Total	9,168	100	862	100	200	100	419	100	243	100
Under 28	39	0.4	2	0.2	2	1.0	...	...	...	...
28	29	0.7	1	0.3	1	1.5	...	...	...	...
29	9	0.8	4	0.8	2	2.5	2	0.5	...	...
30	27	1.1	4	1.3	3	4.0	1	0.7	...	...
31	6	1.2	4	1.7	3	5.5	1	1.0	...	...
32	41	1.6	7	2.6	3	7.0	2	1.4	2	0.8
33	12	1.8	6	3.2	2	8.0	4	2.4	...	0.8
34	66	2.5	14	4.9	7	11.5	5	3.6	2	1.6
35	31	2.8	17	6.8	10	16.5	6	5.0	1	2.1
36	192	4.9	23	9.5	7	20.0	12	7.9	4	3.7
37	98	6.0	34	13.4	8	24.0	18	12.2	8	7.0
38	277	9.0	80	22.7	26	37.0	37	21.0	17	14.0
39	154	10.7	157	41.0	42	58.0	67	37.0	48	33.7
40	7,990	97.9	187	62.6	33	74.5	99	60.6	55	56.4
41	72	98.6	167	82.0	24	86.5	84	80.7	59	80.7
42	91	99.6	70	90.1	9	91.0	37	89.5	24	90.5
43	12	99.8	40	94.8	10	96.0	16	93.3	14	96.3
44	13	99.9	27	97.9	7	99.5	14	96.7	6	98.8
45 and over	9	100.0	18	100.0	1	100.0	14	100.0	3	100.0
Mean	39.60 wk.		39.67 wk.		38.54 wk.		39.91 wk.		40.16 wk.	
Standard Deviation	1.78 wk.		2.77 wk.		3.44 wk.		2.61 wk.		2.06 wk.	

TABLE 4.—*Distribution of Single Live Births by Birth Weight and Length of Gestation, Baltimore City, January-June 1949*

Length of Gestation	Total Births (Weight Stated)	Birth Weight, Gm.									
		500-	1,000	1,500-	2,000	2,500-	3,000	3,500-	4,000	4,500-	5,000 +
18	..	..	..	..	..	..	..	..	..	..	..
19	..	..	..	..	..	..	..	..	..	..	..
20	3	1	1	1	..	..	..	..	..	..	..
21	..	..	..	..	..	..	..	..	..	..	..
22	3	2	1	..	..	..	..	..	..	..	..
23	1	..	1	..	..	..	..	..	..	..	..
24	10	8	1	1	..	..	..	..	..	..	..
25	5	5	..	..	..	..	..	..	..	..	..
26	15	9	5	..	1	..	..	..	..	..	..
27	2	..	1	..	..	1	..	..	..	..	..
28	29	11	11	3	3	1	..	..	..	..	..
29	9	2	4	1	2	..	..	..	..	..	..
30	27	2	9	13	3	..	..	..	..	..	..
31	6	..	2	2	1	1	..	..	..	..	..
32	41	1	6	15	13	2	1	3	..	..	..
33	12	..	1	5	5	..	..	1	..	..	..
34	66	1	5	21	31	6	1	1	..	..	..
35	31	..	..	11	14	3	2	1	..	..	..
36	192	..	1	25	82	50	16	18	..	..	..
37	98	..	..	5	34	32	17	8	1	..	1
38	277	..	..	7	66	107	75	18	4	..	..
39	154	..	..	3	18	44	64	24	..	1	..
40	7,990	1	3	19	204	1,844	3,433	1,899	493	81	13
41	72	..	..	..	1	10	26	28	7	..	..
42	91	..	..	..	..	15	29	27	14	3	3
43	12	..	..	..	..	..	2	8	1	..	1
44	13	..	..	..	1	1	3	5	1	2	..
45	2	..	..	..	..	..	2	..	..	..	..
46	2	..	..	..	..	..	2	..	..	..	..
47	..	..	..	..	..	..	..	..	..	..	..
48	5	..	..	..	1	..	2	2	..	..	..
Total	9,168	43	52	132	480	2,117	3,675	2,043	521	87	18

In table 2, prematurity ratios as well as total number of births are distributed by age of mother and birth order. The interpretation of these data can be best understood by referring also to chart 2.

Confining our analysis to data describing the prematurity experience for all races combined, we find that the mean prematurity ratios for successive birth orders show no significant difference. When the effect of maternal age is considered, there is an indication of a higher mean prematurity ratio for mothers below 20 years old than there is for older groups. These observations do not reflect the chief sources of variation in prevalence of prematurity among newborn babies. When birth orders are considered separately or in groups in relation to age, two significant trends are noted: There is an optimal age for first order births (22.5 years), and risks of prematurity rise gradually for both younger and older mothers; for later order births, high risks of prematurity are associated with young age groups with a minimum at age 27.5 followed by a comparative plateau at the minimum level.

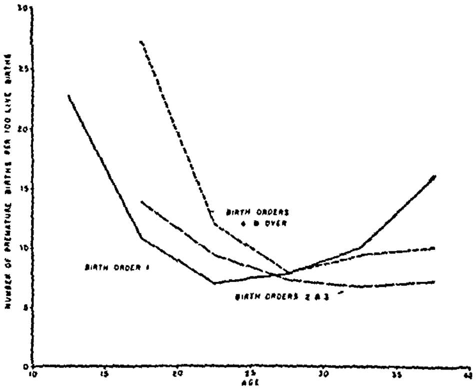

Chart 2.—Premature ratios for live births by age and birth order, Baltimore City, January-June 1949. The solid line indicates birth order 1; the broken line, birth orders 2 and 3, and the dotted line, birth orders 4 and higher.

In a study of the maternal age distributions, it was noted that 26 per cent of the Negro mothers were below the age of 20, compared with 10 per cent of the white mothers. The effect of the differential of age distributions on the prematurity ratio was studied by standardizing the Negro distribution according to the white maternal age distribution. This procedure reduced the nonwhite prematurity ratio to 11.0 per 100 live births, an 8 per cent reduction from the index of 12.0 shown in table 2.

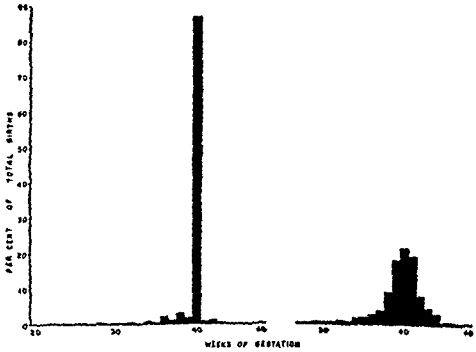

Chart 3.—Frequency distribution of single live births by length of gestation. The distribution for sample A (Baltimore City, January-June 1949) is shown at the left; that obtained from the summary of clinical records (samples B, C and D), at the right.

Length of Gestation.—In table 3, the distribution of single births according to length of gestation as obtained from birth records (sample A) is compared with a distribution obtained from a composite of clinical records (samples B, C and D). These distributions are graphically presented in chart 3.

As indicated in a discussion on the nature of data used, extreme bias is indicated in sample A. Higher frequencies are associated with even weeks throughout the distribution. There is a peculiar concentration of values in the 40 week class, 87.2 per cent of all births being reported in this category. These data were considered to be grossly in error in view of the usual manner in which all organisms tend to vary about a center value in respect to biological variables. In order to test the validity of the data submitted on birth records relative to length of gestation, a study of clinical records was undertaken and some of the resulting data are shown in table 3 and chart 3. It is interesting to note that the distribution obtained shows no bias in respect to selection of even weeks for higher frequencies, nor is there to be found a sudden rise in frequency at 40 weeks' gestation. The distribution obtained by study of clinical records is negatively skewed and gives evidence of leptokurtosis ($B_2 = 6$).

TABLE 5.—*Distribution of Plural Live Births by Birth Weight and Length of Gestation, Baltimore City, January-June 1949*

Length of Gestation, Wk.	Total	Birth Weight, Gm.									
		500 to 999	1,000 to 1,499	1,500 to 1,999	2,000 to 2,499	2,500 to 2,999	3,000 to 3,499	3,500 to 3,999	4,000 to 4,499	4,500 to 4,999	5,000
18	2	2	..	..	..	..	..	..	..	..	..
20	5	5	..	..	..	..	..	..	..	..	..
24	2	2	..	..	..	..	..	..	..	..	..
26	2	1	1	..	..	..	..	..	..	..	..
28	2	..	2	..	..	..	..	..	..	..	..
30	1	..	1	..	..	..	..	..	..	..	..
31	1	..	..	1	..	..	..	..	..	..	..
32	19	..	5	9	5	..	..	..	..	..	..
34	6	..	..	6	..	..	..	..	..	..	..
35	10	..	..	3	5	2	..	..	..	..	..
36	23	..	3	5	14	1	..	..	..	..	..
37	16	..	..	7	3	5	1	..	..	..	..
38	20	..	..	1	8	11	1	..	..	..	..
39	5	..	..	..	3	1	1	..	..	..	..
40	103	..	..	3	26	51	25	2	..	..	..
41	2	..	..	..	1	1	..	..	..	..	..
Total	219	10	12	35	65	72	28	2	..	..	..

Studies of other investigators working directly from patient histories have resulted in distributions of single births by length of gestation similar to the composite distribution shown in chart 3.

Karn [4] presents data based upon 3,275 births of white infants and obtains a curve similar to that found in the study of clinical records with a mean of 278 days and a standard deviation of 16.3 days, or 2.33 weeks. Anderson, Brown and Lyon,[2] in a study of 4,843 births, obtained distributions for white and Negro infants with means of 279.5 and 274.0 days, respectively, and a standard deviation of 21 days, or 3.0 weeks.

On comparison of samples B, C and D, it appears that Negro mothers have a mean duration of gestation somewhat shorter than white mothers. Likewise, the percentage of births of 37 weeks' gestation or less among Negro mothers is twice that observed among white mothers of comparable socioeconomic status (sample C).

Compared with the composite of clinical records, the health department records grossly understate the frequency of occurrence of births of durations other than 40 weeks. This phenomenon results principally from a working rule in hospitals that newborn babies with birth weight of 2,500 Gm. or more are regarded as full term and gestation is given as 40 weeks without reference to the patient's history.

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4. Karn, M. N.: Length of Human Gestation with Special Reference to Prematurity, Ann. Eugenics **14**: 44, 1947.

5. Hosemann, H. A.: Schwangerschaftsdauer und Neugeborenengewicht, Arch. f. Gynäk. **176**: 453-457 (Jan. 2) 1948.

6. United States Department of Commerce, Bureau of the Census: Definition of Terms, The Registrar **4**: 4 (Feb. 15) 1939.

Length of Gestation and Birth Weight.—In view of the marked bias relative to statements of length of gestation found on birth records, it was considered unwise to employ this material in a study of the interrelationships between birth weight and length of gestation. Such material as was obtained from birth records is given in tables 4 and 5.

A distribution of 656 white single births (samples B and C) by birth weight according to length of gestation is given in table 6. An examination of mean birth weights for specified gestational periods gives indication of a catalytic or growth curve reaching an asymptote of approximately 3,450 Gm. The nature of the curve is quite similar to the regression of birth weight on length of gestation reported by Hosemann [5] in a study of 12,000 cases, although the latter investigator gives birth weight values for early gestation ages somewhat lower than observed in this analysis.

TABLE 6.—*Single White Live Births by Birth Weight and Length of Gestation, Samples B and C Combined*

		Birth Weight, Gm.								
Length of Gestation, Wk.	Total	1,000 to 1,499	1,500 to 1,999	2,000 to 2,499	2,500 to 2,999	3,000 to 3,499	3,500 to 3,999	4,000 to 4,499	4,500 to 4,999	Mean Birth Weight
Total............	656	1	6	34	124	261	163	60	7	3,318
28-31............	4	1	..	1	1	1	..	..	..	2,375
32............	4	..	1	1	2	..	..	..	..	2,375
33............	4	..	..	1	2	1	..	..	..	2,750
34............	7	..	1	2	1	2	1	..	..	2,750
35............	7	..	..	2	2	2	1	..	..	2,893
36............	16	..	1	4	2	7	1	..	1	2,969
37............	26	..	..	4	9	8	2	3	..	3,077
38............	54	..	1	5	13	22	11	2	..	3,148
39............	122	..	..	4	23	46	31	6	2	3,330
40............	152	..	1	4	31	66	38	12	..	3,315
41............	142	..	..	3	15	58	42	21	3	3,503
42............	61	..	1	3	9	24	16	7	1	3,373
43............	30	..	..	..	7	9	9	5	..	3,450
44............	20	..	..	..	4	9	5	2	..	3,375
45............	6	..	..	..	1	2	3	..	..	3,417
46............	7	..	..	..	1	3	3	..	..	3,393
47 and over....	4	..	..	..	1	1	..	2	..	3,625

TABLE 7.—*Percentage Distribution of Single White Live Births According to Alternative Definitions of Prematurity*

	Birth Weight		
Length of Gestation	Below 2,500 Gm.	2,500 Gm. and Over	Total
Over 37 weeks..............	3.3	86.3	89.6
37 weeks and below........	3.0	7.4	10.4
Total..................	6.3	93.7	100.0

The wide variation of birth weight within given gestational periods is not unexpected ($\sigma = 500$ Gm.). When births are distributed according to the two commonly accepted definitions of prematurity—i. e., length of gestation equivalent to or less than 37 weeks [6] and a birth weight less than 2,500 Gm.—the distribution shown in table 7 results.

Of the babies judged premature by weight alone, about 51 per cent appear to be mature babies in terms of duration of gestation. When classified according to both criteria of prematurity, only 3.0 per cent of all live births appear to meet these definitions of prematurity. It is obvious, therefore, that mortality studies of premature infants when classified by birth weight alone may understate the risk involved in view of the inclusion in the exposed-to-risk group of a segment which is probably mature but small in stature.

SUMMARY

Recognizing the need for data on the prevalence and causes of prematurity, the Bureau of Biostatistics of the Baltimore City Health Department has analyzed statements submitted by attending physicians relative to birth weight and length of gestation of infants born during the period January to June, 1949. These data have been supplemented by special studies made directly from clinical histories.

Accepting a birth weight of less than 2,500 Gm. as the sole criterion for classification, 7.4 per cent of white babies and 12.0 per cent of Negro babies are prematurely born. In view of the more favorable neonatal mortality experience among Negro babies of low birth weight as compared with white babies of equivalent weight, it has been suggested that 2,350 Gm. would be a more logical limit for classifying nonwhite babies in respect to prematurity. When this limit is employed, the differential in percentage prematurity between races is eliminated.

Statements concerning length of gestation as found on birth records have shown marked bias. It appears that this stems from the working principle followed in hospitals of presuming that all infants of 2,500 Gm. birth weight or over are full term (40 week) babies. Careful study of clinical histories indicates that approximately 7.4 per cent of white babies are mature in respect to birth weight but are below 38 weeks' gestation and, conversely, 3.3 per cent of live born babies may be mature in duration of gestation and, nevertheless, below the established birth weight level for maturity. Only 3 per cent of white babies appear to meet the definitions of prematurity both in birth weight and duration of pregnancy.

In evaluating programs concerned with the care of premature babies and the prevention of prematurity, we must utilize criteria in addition to birth weight to avoid inclusion of infants who represent mature small babies in premature study groups. Persistence in the use of a rigid definition of prematurity in terms of birth weight for all racial and national groups will mask the differential mortality analysis of infants who are below the birth weight standard of 2,500 Gm., but who are mature as determined from the other criteria, such as length of gestation and neonatal mortality experience.

Contact Dermatitis.—Two important causes of contact dermatitis have been re-emphasized during the past year. One of these contactants is cocobolo wood, which is important because it is used in the manufacture of the handles of steak knives and forks, pocketknives and butcher knives, musical and scientific instruments, handles of pressure cookers, chessmen, rosary beads, etc. In most cases, the dermatitis is on the hands as would be expected. The other contactant is the cosmetic rubber sponge used by many women as an applicator for cosmetic powders, "pancake" make-up preparations, etc. It is well known that rubber products are important causes of contact dermatitis, but this sponge rubber is a special preparation and apparently has been used extensively in recent years. Most of these patients have dermatitis of the face and the neck.—C. S. Livingood, M.D., Dermatology, in Medicine of the Year, Philadelphia, J. B. Lippincott Company, 1951, page 54.

OBSERVATIONS ON CLINICAL ASPECTS OF HYSTERIA

A QUANTITATIVE STUDY OF 50 HYSTERIA PATIENTS AND 156 CONTROL SUBJECTS

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and
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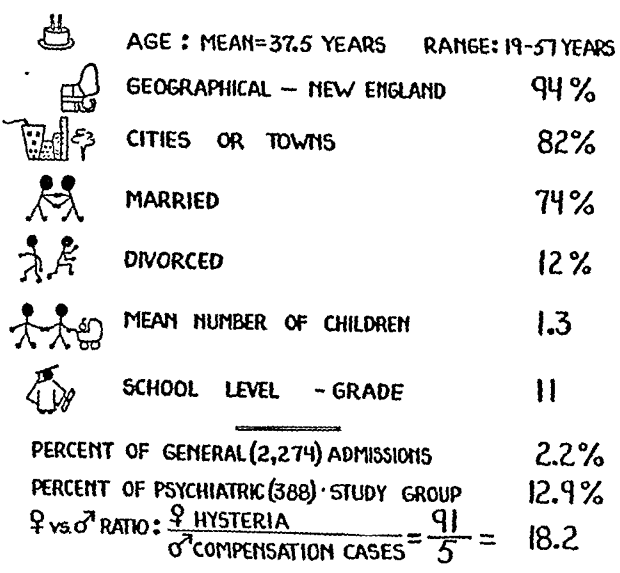
Hysteria (*ὑστέρα*) has been noted by physicians since antiquity,[1] but no consistent clinical picture to accompany this term has clearly emerged from the medical literature. The study reported here was undertaken for the further investigation of clinical observations that suggested that hysteria as seen in hospitals in New England presents a rather definite clinical picture. The study was undertaken for the determination, first, whether the clinical impression of the relatively constant pattern of hysteria was a true impression; secondly, to provide factual data that might be useful to the clinician in the diagnosis of hysteria, and thirdly, to provide a sound clinical basis for further research in hysteria.



The group characteristics of 50 women with hysteria.

SELECTION OF PATIENTS WITH HYSTERIA

The patients selected for this study were 50 women with hysteria examined in a diagnostic hospital in New England. All patients admitted to the hospital were referred by their own physicians as presenting diagnostic problems for consultation and further investigation.

During the six month period covered by this study 2,274 patients were admitted to the hospital. Approximately one third of these (671) were referred by the medical services for psychiatric evaluation. Three hundred and eighty-eight of this group, of which 267 were women and 121 men, were examined by at least one of us (M. E. C., J. J. P.). The diagnosis of hysteria, simple or complicated by other disease, was made for 91 of the 267 women patients of the special research group. For none of the men was such a diagnosis made, although during the period of this study the diagnosis of "compensation neurosis" was made for five men. Of the 91 women with hysteria, 50 were included in this study. Of the 41 patients not included, 15 had proved or strongly suspected medical or psychiatric disease in addition to hysteria; eight had only a questionable diagnosis of hysteria, and eight were examined by only one of the examiners. Ten other patients with hysteria were examined clinically, but observations for this study were not made on them. General features of the 50 women with hysteria in this study are summarized in the figure.

METHOD OF STUDY

All patients studied by the psychiatrists were admitted to the medical services, where a thorough medical diagnostic study, including laboratory work-up, was done. This included, in addition to a complete physical examination, a chest x-ray, urinalysis, sedimentation rate determination, serology and the usual hematological studies in all cases. Stool examinations, basal metabolic tests, electrocardiograms and skeletal x-rays were done in more than half the cases. Gastrointestinal x-ray studies were made in 48 per cent, and other special studies, such as spinal fluid examinations, electroencephalograms and proctoscopic examinations, were done as indicated. Tests for urine porphyrin were done in 98 per cent of the cases, and the reactions were negative. Patients included in this series showed no important or diagnostic abnormalities. This was used as additional evidence that the diagnostic criteria excluded any other medical illness, since the laboratory data were reviewed after the patient was admitted to the series. The patients were studied by the psychiatric service when the medical services suspected the presence of some type of psychiatric disease. In the 50 cases reported, the diagnosis of hysteria was made by two of us (M. E. C. and J. J. P.) when there were many features characteristic of the disease and when no other diagnoses, medical, neurological or psychiatric, were present or would explain symptoms at the time of the examination. A follow-up study was done by means of letters sent to the patients and their referring physicians four or more months later to ascertain if any other obvious disease had developed. Information was received on 84 per cent of the patients, and since no medical disease had developed in any one of them in this period of time, this was thought to be a further indication that the diagnostic criteria used excluded medical illness.

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† Dr. Purtell died on June 10, 1949.

From the Department of Psychiatry of the Tufts College Medical School (Graduate Division) and the Departments of Medicine and Obstetrics of the Harvard Medical School.

Patients and control subjects were selected from and examined in the psychiatric and medical services of Joseph H. Pratt Diagnostic Hospital, in the clinic and Psychologic Laboratory of Boston Lying-In Hospital; at Murphy General Hospital (Army); Brighton Marine Hospital (United States Public Health Service); at Boston City Hospital (in the Harvard medical and neurological services); Veterans Administration Hospitals Cushing, Bedford, Togus; Mental Hygiene Clinic; Ford Underwear Co., and General Electric Company, Lynn, Mass.

[1] Hippocrates: The Genuine Works of Hippocrates, translated by Francis Adams, Baltimore, William Wood & Company, 1938. Aretaeus, the Cappadocian: The Extant Works of Aretaeus the Cappadocian, edited and translated by Francis Adams, London, The Sydenham Society, 1856.

The method of this study consisted of a psychiatric interview and examination averaging two hours in length and the observation of the patient during a four or five day hospital stay. All examinations were conducted in privacy by one of us. During the interview, data were recorded on a standard questionnaire form comprising 106 items. All items were scored plus or zero in accordance with standard criteria established by us. The same criteria and scoring methods were used in recording relevant information from the questionnaire in the control groups studied.

Questions concerning symptoms considered improbable in hysteria were included to test whether these patients said "yes" to all questions, in order to determine if the examiners were suggesting the symptoms to the patients.[1a]

THE WOMEN CONTROL GROUPS

For control groups there were 50 working women from industry for healthy controls, 38 postpartum women from Boston Lying-In Hospital for hospital controls, and 30 women with chronic medical disease for sick controls from a diagnostic hospital.

Healthy Control Subjects.—Healthy control subjects were defined as including women who were regularly employed, who were not under medical care and did not consider themselves ill at the time of the interview. Sixty-two women were assigned to the study by a foreman. Of these women, 19.4 per cent did not agree to be examined. The examination was described as part of a medical research project, and the women were interviewed in privacy by one of us.

The 50 healthy control subjects were compared with the patient group with regard to the frequency of symptoms, number of hospitalizations and number and type of operations.

Control Subjects with Chronic Medical Illness.—The medically ill control subjects were interviewed and examined at the same hospital as were the women with hysteria and comprised a group of comparable age who had definitely diagnosed, chronic medical illness. Included in the 30 were those with diagnoses of ulcerative colitis, chronic duodenal ulcer, carcinoma of the bowel and stomach, Addison's disease, thyrotoxicosis, myxedema, Hodgkin's disease, rheumatic heart disease, diabetes and multiple myeloma. No neurological or psychiatric illnesses were included. The entire sample of 30 women was examined.

Sick control subjects were compared with the patient group with regard to nature of complaint, reason for hospitalization, manner and attitude toward illness and number of previous hospitalizations and operations.

Healthy Hospitalized Controls (Postpartum Women).—Hospital controls included 38 healthy women examined at Boston Lying-In Hospital during the postpartum period after a normal pregnancy. The whole group was examined. They were a group of healthy but hospitalized women who were used in the comparison of the manner and attitudes of well women in a hospital atmosphere with those of the women hysteria group. These patients were used further in an effort to answer the question: "Does hospital environment suggest, to a well woman, the symptoms of hysteria?"

MEN WITH DIAGNOSES OF "HYSTERIA"

The 38 men patients with diagnoses of "hysteria" were in service hospitals and had compensation prospects. Since no men with typical hysteria were discovered in civilian hospitals, and since "hysteria" is an acceptable diagnosis in service hospitals, men with this diagnosis were examined in these hospitals to ascertain what their clinical picture was. The 38 men included 20 soldiers on active duty, one member of the Coast Guard on active duty, 13 veterans and four civilian patients with compensation problems. The term "compensation" was interpreted in this study to mean that the patient had immediate prospect of tangible, material reward accruing from his illness, i. e., collecting money from pension or insurance sources, getting out of military service or avoiding arrest and prosecution. The word "compensation" was not used to mean any subtle factor not immediately obvious to a reasonable observer, such as obscure psychological gains or other less tangible or less immediate material gains. Although the presence of compensation factors was not a prerequisite for inclusion of any patient in the study, no men patients were found in whom this factor was not present. No patient with acute "combat (fright) hysteria" was examined. Criteria for accepting any men in this series are described in detail elsewhere.[2]

STATISTICAL ANALYSIS

The data obtained were analyzed statistically. The following statistical methods were used: The standard error of all proportions was calculated,[3] and the significance ratio of the difference between comparable proportions of various groups was calculated, using the standard formula $\sqrt{\frac{PoQo}{n_1} + \frac{PoQo}{n_2}}$ for the calculation of the standard error between proportions.[3] The standard error of all means was calculated, and the significance ratio of the difference between comparable means of various groups was calculated, using the formula $\sqrt{\frac{\sigma^2}{n_1} + \frac{\sigma^2}{n_2}}$ for the standard error of the differences between the means.[4] The significance ratio of the differences between the means of differences, i. e., correlated data, was calculated by the method presented by Lindquist.[5] Operation and hospitalization rates were calculated on the basis of 1,000 person-years. Odds corresponding to each significance ratio were taken from standard tables, as were squares and square roots.[6] All calculations were checked and rechecked.[7]

[1a] The details of the questionnaire used and the method of evaluating and recording data were described in Neurocirculatory Asthenia, Anxiety Neurosis, and Allied States, Interim Report 8, Office of the Surgeon General, Department of the Army, Washington, D. C., 1951.

[2] Robins, E.; Purtell, J. J., and Cohen, M. E.: "Hysteria" in Men: A study of 38 men so diagnosed and 194 control subjects, to be published.

[3] Yule, G. U.: An Introduction to the Theory of Statistics, ed. 12, London, Charles Griffin & Co., Ltd., Philadelphia, J. B. Lippincott Company, revised by G. U. Yule and M. G. Kendall, 1940.

[4] Hill, A. B.: Principles of Medical Statistics, ed. 4, London, The Lancet Ltd., 1948.

[5] Lindquist, E. F.: A First Course in Statistics, rev. ed., Boston, Houghton Mifflin Company, 1942.

[6] Pearl, R.: Introduction to Medical Biometry and Statistics, ed. 3, Philadelphia, W. B. Saunders Company, 1940. Barlow, P.: Tables of Squares, Cubes, Square Roots, Cube Roots, and Reciprocals, edited by L. J. Çomrie, ed. 4, Chicago, The Charles T. Powner Co., 1944.

[7] All calculations were checked and rechecked by Alice Kilpatrick.

CHARACTERISTICS OF WOMEN WITH HYSTERIA

Onset of Illness.—The illness began in early life. Age at onset of symptoms ranged from 11 to 33 years, with a mean age of onset of 19.1 years.

Symptoms.—There was a total of 1,153 complaints in the patient group, compared with 177 in the healthy controls; the number of symptoms ranged from 11 to 35, with a mean of 23 in the patients, and from zero to 13, with a mean of four, in the healthy controls.

TABLE 1.—*Symptoms in Fifty Women with Hysteria as Compared with those in Fifty Healthy Women*

Symptoms	Women with Hysteria, %	Healthy Controls, %	Significance Ratio
Headache	94	18	7.7
Blurred vision	62	10	5.4
Transient blindness	20	4	2.5
Double vision	10	0	2.3
Lump in throat	74	0	7.6
Loss of voice	45	8	3.8
Dyspnea	70	0	7.3
Palpitation	76	6	7.1
Anxiety attacks	74	8	6.7
Anorexia	78	8	7.1
Nausea	82	2	8.1
Vomiting	62	12	5.2
Abdominal pain	78	8	7.1
Food dyscrasia	76	2	7.4
Constipation	54	10	4.7
Diarrhea	46	2	5.2
Variation in weight	66	4	6.5
Urinary retention	43	2	4.9
Menstrual pain	66	30	3.6
Menstrual lapses	29	2	3.7
Menstrual irregularity	30	12	2.2
Excessive bleeding	44	2	5.0
Sexual indifference	86	29	5.7
No sexual pleasure	73	15	4.7
Painful intercourse	63	7	4.6
Story of sexual assault	10	0	2.1
Prolonged (+3 mos.) vomiting in pregnancy	56	5	3.8
Difficult delivery	60	20	2.8
Back Pain	56	14	4.4
Joint pain	28	6	2.9
Pain in extremities	62	6	5.9
Paralysis	33	0	4.4
Paresthesias	80	4	7.7
Dizzy spells	72	18	5.4
Fainting spells	50	2	5.5
Fits	12	0	2.5
Trance states	42	0	5.2
Talking in sleep	37	10	3.1
Crying easily	78	30	4.7
Easily upset	66	24	4.2
Depressed state	58	10	5.1
Nervousness	68	22	4.6

Patients with hysteria differed significantly from healthy control subjects with respect to the following symptoms: headaches, blurred vision, blindness, lumps in throat, palpitation, "anxiety attacks," anorexia, nausea, vomiting, urinary retention, menstrual difficulties, sexual difficulties, dizzy spells, faints, trances, paralysis and many others. These are shown in detail in table 1. Patients did not differ significantly from healthy control subjects in the frequency of the following three symptoms only: sleepwalking, 20 per cent vs. 8 per cent; loss of memory, 6 per cent vs. 0.0 per cent, and attempted suicide, 4 per cent vs. 0.0 per cent.

The following phenomena were investigated in both the hysteria group and the healthy group and were not significantly different: percentage of women who were arrested (hysteria group, 2 per cent; controls, 0.0 per cent; significance ratio, 1.0); percentage of women who used alcohol to excess (hysteria group, 2 per cent; controls, 0.0 per cent; significance ratio, 1.0), and percentage of women who had been divorced at least once (hysteria group, 28 per cent; controls, 11 per cent; significance ratio, 1.6).

Observations were made to determine whether hysteria patients appeared significantly younger for their age than other women. The hysteria patients averaged an estimated appearance of 1.3 years younger than their stated age, and the hospitalized healthy controls 0.2 years younger than their stated age and the controls with chronic medical illness 0.9 years older than their stated age. The differences in these values were not statistically significant (significance ratios: hysteria patients vs. healthy controls, 0.6; hysteria patients vs. medically ill controls, 1.6). Thus, women with hysteria were not found to be especially young-looking for their age; therefore, this is not a useful diagnostic sign of hysteria.

Some personal and social aspects of hysteria were investigated. Thirty-eight per cent of the hysteria patients, compared with none of the healthy controls, stated that they had had a significant amount of trouble with their schooling, either prolonged absences due to illness or impaired performance due to illness. This difference was statistically significant, with a significance ratio of 4.8. These patients had completed 11 years of school despite health troubles. This fact does not support the clinical idea that hysteria affects only the illiterate and feebleminded. Sixty-seven per cent reported a significant amount of trouble at work, either prolonged absences or impaired performance due to illness. This difference was statistically significant, with a significance ratio of 6.0. Fifty per cent of the women with hysteria, compared with 15 per cent of the healthy controls, had had a significant amount of marital trouble, either divorce, separation or active incompatability. This difference was statistically significant, with a significance ratio of 3.0.

Patients with hysteria not only complained of many symptoms but also described their symptoms in a characteristic manner. The descriptions were imprecise, vague, exaggerated, colorful and dramatic. In addition, when asked to describe in detail a specific complaint, these patients would shift the subject, so that they would be talking about an unrelated complaint or some seemingly irrelevant item in their past lives.

Thus, vomiting was described by a patient: "I vomit every ten minutes. Sometimes it lasts for two to three weeks at a time. Can't even take liquids. I even vomit water. I can't stand the smell of food." Food dyscrasia was described as, "I can't eat pastries. Always pay for it. I can't eat steak now. I throw up whole milk. I always throw up the skins of tomatoes. Pudding made with canned milk makes me sick. I have to use fresh milk." Trance state was reported: "I passed out on the bathroom floor during my period and was still on the floor when they found me the next morning." Variation in weight was described: "I can lose weight just walking down the streeet. I can hold my breath and lose weight. I was down to 65 pounds at one time."

Especially prominent symptoms were pain, menstrual difficulties, alleged difficulty during pregnancy and difficulty in sexual adjustment.

Pain was a more frequent feature of the illness in New England women than the paralysis, blindness and amnesia often assumed as most characteristic of the disease. There was a distinct contrast between the women patients and healthy women with regard to headaches, abdominal pain, pain in back and extremities and pain associated with menses and sexual intercourse.

Not only was there a high frequency of symptoms in women with hysteria associated with menstrual, sexual and reproductive functions, but also were such symptoms described by the patients in a characteristic, colorful and dramatic fashion. Thus, dysmenorrhea was described: "I can't work. Every month I am in bed for several days. I have had to have morphine hypos. There is a throbbing pain in the legs as if the blood doesn't circulate. Can't go to the bathroom, as I faint"; or, "It's murder! I want to die. It affects my nervous system." Patients reported amenorrhea and irregularities in the menstrual cycle as of frequent occurrence. One third of the patients described menstrual lapses of three months or longer, and 30 per cent described irregularity as a characteristic feature of their menstrual cycle. Excessive bleeding was a complaint in 44 per cent of the patients. It was frequently described dramatically as a hemorrhage or a bleeding in clots and lumps.

Sexual symptoms occurred in almost every case. Ninety-eight per cent of the women patients with hysteria presented sexual symptoms of some type. The most common of these was indifference. The patients reported: "Have never been interested," "It's not a normal thing to me. Disgusting!" or "My husband has never bothered me." To 70 per cent of the patients, as compared with 15 per cent of the healthy women, sexual intercourse was not a source of pleasure or satisfaction. Representative quotations from protocols included, "It's just a part of my married life and I have to do it," "I was always disappointed. Never really enjoyed it, but I had to please my husband" and "I have no feelings. It's just a duty." Sixty-three per cent of the patients, compared with 7 per cent of the healthy women, complained of dyspareunia. Patients reported: "Every time I had intercourse I swelled up on one side. It's sore and burns, and afterwards is very painful" or "I hate it. I have a severe pain on the right side and have to go to bed for a day."

Pregnancy in the women with hysteria was accompanied, according to their statements, by unusual difficulties. Fifty-six per cent of the patients, as compared with 5 per cent of the healthy controls and 8 per cent of the healthy postpartum women, described persistent vomiting beyond the third month of pregnancy. Labor and delivery were considered excessively difficult by 60 per cent of the patient group, compared with 20 per cent of the healthy women and 24 per cent of the postpartum women. Difficulties commonly described by the patient group included prolonged and unusually severe labor and a high proportion of high forceps deliveries.

Nature of Chief Complaints.—The illness was characterized by nonspecific and multiple chief complaints, the relevance of which was not clear (table 2). Despite the high frequency and dramatic quality of the symptoms it was remarkable that the reason for admission to a hospital was often vague or of doubtful relevance. Sixty-six per cent of the patients with hysteria, in contrast to 30 per cent of the women hospitalized with chronic medical illness, presented no specific chief complaint. Instead, in 48 per cent of the cases there was a welter of symptoms, which were classified as multiple complaints. In other cases the reason for admission presented by the patient was not clear, nor did they seem relevant. Thus, patients reported: "I am sore all over. Can't explain it. I have been sick all my life. Now I am alone since my husband died, and the doctor said I must come for help. It has taken $10,000 to keep me alive. This is my seventy-sixth hospitalization"; or "I have been taking care of my invalid mother, and I get very little rest or sleep," or "My father came here for a check-up on his diabetes and insisted that I come along. I had a nervous breakdown in 1943 and have never gotten around to being really well." These reports are in contrast to those of the chronic medically ill women patients, whose reasons for hospitalization and chief complaints were specific and seemingly relevant. Specific symptoms associated with hysteria, such as blindness, aphonia, paralysis and urinary retention, did not occur significantly in the chronically ill; nor were sexual symptoms prominent in women with actual chronic medical disease.

TABLE 2.—*Fifty Women with Hysteria Compared with Thirty Medical Controls* *

	Women with Hysteria, %	Medical Controls, %	Significance Ratio
Chief complaint			
Nonspecific	66	30	3.1
Multiple	48	17	2.8
Irrelevant	40	0	4.0
Specific symptoms			
Blindness	20	3	2.1
Aphonia	45	13	2.7
Paralysis	33	4	2.9
Urinary retention	43	14	2.6
Sexual symptoms	98	52	5.0
Manner and attitude			
Talkative	94	20	6.8
Overly friendly	84	30	4.9
Dramatic past history	96	0	8.5
Not helped by treatment	76	50	2.3
Operations †	3.8	2.0	3.3
Gynecological operations †	1.7	0.6	3.0
Hospitalizations †	6.4	3.2	2.1

* The differences between hysteria patients and medical controls are all statistically significant.

† These values indicate number per person.

Manner and Attitude.—The manner and attitude of the patients with hysteria differed from that of the sick control subjects. Their past histories included, in addition to multiplicity of symptoms, dramatic incidents related to previous hospitalizations or happenings in their personal lives. The hysteria patients were more talkative, more friendly and ingratiating. Despite their friendly attitude toward the physician and their ease in discussing their illness, 76 per cent of the women patients felt that they had not been helped by any previous treatment.

Past History.—The past history of the patient with hysteria showed a significant excess in the number of previous hospital admissions and surgical operations when compared either with the medically ill or with the healthy control subjects (tables 2 and 3).

In patients with hysteria the total number of previous hospitalizations averaged 6.4 for each patient, as compared with 3.2 for the women with chronic medical illness and 1.2 for the healthy control subjects. There was a total of 321 hospital admissions in the patient group, as compared with 97 in the medical control group and 59 in the healthy control group. In brief, the woman patient with hysteria occupied a hospital bed twice as often as the woman with assorted medical illnesses, including such diseases as carcinoma or duodenal ulcer, and five times as often as the average healthy woman.

TABLE 3.—*Operations and Hospital Admissions in Fifty Women with Hysteria Compared with Those in Fifty Healthy Women* *

	Women with Hysteria	Healthy Controls	Significance Ratio
Mean no. per person			
Minor surgical procedures	2.0	0.3	3.4
Major surgical operations	3.8	1.2	5.3
Hospital admissions	6.4	1.2	3.6
Total no.			
Minor surgical procedures	100	15	...
Major surgical operations	190	59	...
Hospital admissions	321	59	...

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* The differences between hysteria patients and healthy controls are all statistically significant.

TABLE 4.—*Comparison of Some Features of Twenty-Five Women with Hysteria and Those of Thirty-Eight Men with Diagnoses of "Hysteria"*

	Women	Men	Significance Ratio
Mean age (years)	30.2	30.2	0.02
Mean no. of symptoms	20	11	7.7
Mean no. of major operations	2.8	1.6	2.3
No chief complaint *	52	24	2.3
Dramatic past history *	92	16	5.9
Overtalkative *	92	16	5.9
Overly friendly *	80	8	5.8
Pension problems *	8	95	6.8
Military problems *	0	24	2.6
Symptoms related to injury *	0	55	4.6

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* These values indicate per cent.

The patients had undergone an excessive number of surgical operations. There was a total of 190 major operations in the hysteria group, as compared with 59 in the healthy control group. There was a mean of 3.8 operations for the hysteria group, as compared with 1.2 for the healthy control subjects and 2.0 for the medical control subjects. One patient with hysteria had 18 operations. Gynecologic operations, such as dilation and curettage, salpingo-oophorectomy or hysterectomy, were done in 72 per cent of the hysteria patients but in only 18 per cent of the healthy control subjects (totals of 83 gynecologic operations, as contrasted with 13 gynecologic operations). Nearly one fourth (24 per cent) of the women patients with hysteria had been sterilized with surgical procedure before the age of 35.

Appendectomy was done in 72 per cent of the patients, as compared with 28 per cent of the healthy control subjects; dilation and curettage were done in 42 per cent of the hysteria patients, as compared with 4 per cent in control subjects, and tubo-ovarian operations were done in 46 per cent of the women with hysteria and in 10 per cent of the control subjects.

Surgical operations performed on the women with hysteria involved removal of more than one organ in a significantly large number of cases when compared with those performed on healthy control subjects. There were 42 instances (a mean of 0.84 for each patient) noted in which the operations involved the appendix plus the tube or the ovary, or the gallbladder plus the appendix or the multiple internal female genital organs. For the group of healthy women six such operations (a mean of 0.12) were recorded. For example, the operation for acute appendicitis in healthy women is confined to appendectomy; in abdominal pain associated with hysteria exploratory surgery and removal of the appendix plus an ovary or some other organ was characteristic.

Minor surgical procedures such as cystoscopic examinations, removals of more than three teeth at a time, skin operations, skin suturings, cauterizations of turbinates and dilations of the rectum were also encountered in hysteria more frequently than in the control groups. The mean for these procedures was 2.0 for each patient, as compared with 0.3 for the healthy control subjects.

POSSIBILITY OF THE EXAMINER "SUGGESTING" SYMPTOMS TO PATIENTS

The question arose whether or not the examiner and the questionnaire suggest symptoms to the patient. To test this point the following questions as to symptoms considered by the examiner to be of unlikely occurrence in any group of patients were spaced through the questionnaire:

1. Has your hair turned white suddenly?
2. Do you have pain in the tip of the left ear?
3. Do you have pain in the right big toenail?
4. Has the skin on your thighs turned red?

Patients with hysteria did not show a high number of "yes" answers to these questions. No patient answered "yes" to questions 1 and 4; only 6 per cent of the patients answered "yes" to questions 2 and 3. Moreover, three symptoms (story of sexual assault, 10 per cent, amnesias, 6 per cent and attempted suicide, 4 per cent), which the investigators had expected to occur commonly as symptoms of hysteria, revealed only a few "yes" answers. This suggests that the examiner's attitude and inflection of voice in asking questions that he believed referred to common symptoms of hysteria were not the crucial factors in determining the frequency of "yes" answers.

COMPARISON OF HYSTERIA IN WOMEN WITH "HYSTERIA" IN MEN

Few men with this disorder were seen in the civilian hospitals, and those who were seen were "compensation cases." The illness as seen in the woman patient differed significantly from that referred to as hysteria in the men patients. Table 4 summarizes these differences.

The men patients presented a more specific and well defined chief complaint in contrast to the women, whose complaints were vague and nonspecific and in whom the reason for readmission to the hospital was sometimes not clear. The women with hysteria had a mean number of symptoms of 23, the men 11.

In the women patients the following 20 symptoms occurred with statistically greater frequency than in the men patients: double vision, lumps in throat, loss of voice, anxiety attacks, anorexia, food dyscrasia, abdominal pain, nausea, constipation, diarrhea, unusual variation in weight, sexual indifference, no sexual pleasure, painful intercourse, paralysis, paresthesia, faints, trances, crying easily and depressed state. There were no statistically significant differences in the following 17 symptoms: headaches, blurred vision, transient blindness, dizzy spells, dyspnea, palpitation, vomiting, back pain, joint pain, pain in the extremities, fits, sleepwalking, sleep talking, amnesia, nervousness, being easily upset and suicide attempts. Of these 17, the frequency was greater in 11 symptoms for the women and in only six for the men.[2]

Sexual difficulties were more prominent in the women than in the men, 98 per cent vs. 32 per cent. The past history of the women patients in 92 per cent of the cases included dramatic personal and medical happenings, as compared with 16 per cent of the men, and twice as many women patients had been subjected to major surgery (the mean number in the women was 2.8, as compared with 1.6 in the men).

The manner and attitude of the women patients was characterized by friendliness, affability and loquaciousness in describing symptoms, which was in contrast to that of the men patients.

A remarkably striking difference between the men and women patients concerned the possibility of immediate and obvious gain from illness or symptoms in the men (table 4). During the course of the study in a civilian hospital, either in the diagnostic hospital or in the medical or neurological services of a large municipal hospital, we were unable to find a case of hysteria in men comparable to the cases seen in women. In all of the men patients some factor of compensation was present. This factor was conspicuously absent in the women studied.

COMMENT

The data presented here show that women with diagnoses of hysteria in a civilian hospital presented a characteristic clinical picture. The symptoms are multiple, and most of the symptoms occur in most of the patients. The past histories of the patients show many hospitalizations and operations; the women with hysteria differ both from healthy control subjects and from patients with chronic medical illnesses in a myriad of ways. It is believed that the clinical picture is sufficiently characteristic and distinctive for practical use in everyday diagnosis. It should be pointed out that these patients were referred to a diagnostic hospital for diagnostic study, therapeutic advice, or because the physician thought a change might help. It is possible that these patients had a severer form of hysteria than the ordinary form. It is probable that these patients were doing poorly on a therapeutic regimen instituted by their physicians. The course of all hysteria therefore should not be inferred from these data. It is not known what proportion of patients with hysteria, well managed from the onset of their illness, would escape the severer manifestations of hysteria present in some patients of this group. The data do show, however, that hysteria does not invariably vanish as the patient grows older; there were seven patients 50 years old or older in the series. The maximum age was 57.

This report will not discuss the age old problem of hysteria in men. Suffice it to say here that no instances of hysteria in men were discovered in a civilian hospital, and that the "hysteria" diagnosed in men in the control study (those in service hospitals and with compensation problems) differed in many respects from the hysteria in women.[2]

The first important question arises whether or not the working definition of hysteria used in selecting these patients determined completely the results of the investigation. It is probable that this factor had some importance in the study but was not crucial. A clinical study of a disease, the cause of which is unknown and for which no quantitative objective diagnostic criteria are present, probably always amounts to the process of making more precise the original definition. However, it should be pointed out that the absence of certain specific features or pattern of features did not exclude a patient from this study. For instance, the examiners had the clinical impression before the study that features such as sexual frigidity, an excessive number of surgical operations, gastrointestinal pain, paralysis and visual difficulties were common features of hysteria. However, no patients were excluded from the study simply because they lacked these symptoms. The invesigators started with the general impression that monosymptomatic hysteria in civilian population probably does not occur. The problem of whether or not such cases should be included in the series did not arise, because no case presenting this problem was referred. The examiners started with the impression that hysteria in civilian men was rare or nonexistent but would have included such cases in the study if they had been discovered. Except for a few cases involving compensation and veterans' problems, no cases resembling the characteristic diagnostic picture of hysteria were seen in men in civilian hospitals; it was necessary to go to service hospitals in order to see adequate numbers of cases in men with what was labeled "hysteria." And, as noted previously, these service and compensation cases in men did not have the same clinical picture as cases of hysteria in women. It can and should be said that the original diagnostic criteria influenced in a general way the results of the study but did not determine the detailed results.

The second important question arises whether or not the women with diagnoses of hysteria in this study have the same disorder that other observers call hysteria. This question cannot be answered from the literature at this time, and it is probable that comparisons with past literature can never be made with finality. Almost the only authors who present quantitative clinical data about hysteria are Briquet[8] and Savill.[9] Even though the figures of this study are in good agreement with figures of these authors in most instances (table 5), the three studies are not strictly comparable, because the methods of eliciting data and definitions of symptoms were not clearly enough stated to be accurately reproducible by anyone. Except for these two studies there have been two predominant emphases in the literature concerning hysteria, namely, emphasis almost solely on the "neurological signs and symptoms," found chiefly in the writings of neurologists,[10] and emphasis almost solely on the psychological mechanisms called "conversion," "contraction of the field of consciousness" and specific "complexes." [11] The results of this study cannot be fruitfully compared with the results of studies done exclusively from the above points of view. Neither the predominantly neurological nor the predominantly speculative studies about psychological mechanisms have quantitative data, nor do the authors of such studies clearly state how their data were obtained. In addition, the data in the psychological studies are not presented in a form that is precise enough and sufficiently controlled to be reproducible by other workers.

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[8] Briquet, P.: Traité clinique et thérapeutique de l'hysterie, Paris, J. B. Ballière et Fils, 1859.

[9] Savill, T. D.: Lectures on Hysteria and Allied Vaso-Motor Conditions, London, H. J. Glaisher, 1909.

In spite of these difficulties in comparing the present study with the remainder of the literature, there are apparent gross similarities between patients in this study and those reported elsewhere. Of six classical symptoms of hysteria, namely, paralysis, blindness, urinary retention, trances, fits and amnesia, 78 per cent of the patients in this study had at least one. Also, medical symptoms are noted in hysteria by other authors.[12]

No special study was made here of "stigmata" of hysteria, such as corneal anesthesia or pharyngeal anesthesia. Sir Arthur Hurst [13] believed that these "stigmata" did not occur spontaneously and concluded that they were probably suggested by the examiner. He created new "stigmata," namely, umbilical anesthesia, nasal anesthesia and the spiraling of the visual fields outward. In light of such data, no attention was paid to so-called classical stigmas in this study. The question arose, however, whether or not the examiners in this study were creating their own "stigmata" by suggesting certain symptoms to the patients in the questionnaire method. An attempt was made to control this factor by including four questions referable to symptoms that the examiners believed probably did not occur in hysteria, and it was demonstrated that the patients did not answer these questions affirmatively. From this it was concluded that the higher proportion of patients answering affirmatively about the symptoms of hysteria was not simply a reflection of the particular questions that were asked them.

TABLE 5.—*Prevalence of Symptoms in this Study Compared with Older Studies* *

	This Study (50 Cases)	Briquet, 1859 (430 Cases)	Savill, 1909 (500 Cases)
Headache	94	84	..
Blindness	20	1	..
Dizzy spells	72	33	Extremely frequent
Globus hystericus	74	93	Frequent
Dyspnea	71	93	..
Abdominal pain	78	91	..
Menstrual difficulties	82	53	..
Paralysis	33	28	11
Back pain	56	98	..
Joint pain	28	4	..
Extremity pain	62	15	..
Fits	12	72	31
Trances	42	4	2
Sleepwalking	20	..	2
Amnesia	6	Occurs	9
Anxiety attacks	74	Very often	..
Palpitation	76	Frequent	Frequent
Anorexia	78	Common	..
Food dyscrasia	76	Common	..
Nausea	82	Common	..
Vomiting	62	Common	Frequent
Constipation	54	Most frequent	Frequent
Urinary retention	43	Frequent	..
Faints	50	Very frequent	..
Nervousness	68	Frequent	..
Cry easily	78	Frequent	..
Easily upset	66	Frequent	..
Blurred vision	62	Occurs	..
Loss of voice	45	Occurs	..
Diarrhea	46	Occurs	..
Menstrual pain	66	Occurs	..
Menstrual lapses	29	Occurs	..
Menstrual irregularity	30	Occurs	..
Sexual frigidity	73	Occurs	..
Paresthesias	80	Occurs	..
Dramatic past history	96	..	Occurs

* Twelve symptoms noted in this study but not by Briquet or Savill were not included in this table. Briquet and Savill mentioned 13 symptoms not specifically studied here, of which only chest pains, tremors and urinary frequency were said to occur frequently.

Many observers have suggested that the phenomena of hysteria arise through the process of suggestion.[14] Since it has been demonstrated that the examiners probably did not suggest the symptoms, it should be asked whether or not there are other reasonable possibilities that should be investigated. Are the symptoms of hysteria in New England reflections on the medical care, the health advertisements and twentieth century medical folklore that could be suggested to the patient through various mediums? If suggestion is an important part in hysteria symptomatology, as has been claimed,[10d] this might offer a plausible explanation of the origin of some of the symptoms; but there are no crucial data to support this, and controlled investigation would be necessary to find out.

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10. (*a*) Head, H.: The Diagnosis of Hysteria, Brit. M. J. 1: 827, 1922. (*b*) Dana, C. L.: Hysteria and Organic Disease: A Study of the Diagnosis with Reports of Cases, M. Rec. 62: 441, 1902. (*c*) Charcot, J. M.: Lectures on Disease of the Nervous System, London, The New Sydenham Society, 1877, vol. 1, translated by G. Sigerson; 1881, vol. 2, translated by G. Sigerson; 1889, vol. 3, translated by T. Savill. (*d*) Babinski, J.: Hysteria or Pithiatism, London, University of London Press, 1918.

11. (*a*) Janet, P.: The Major Symptoms of Hysteria, New York, The Macmillan Company, 1907. (*b*) Freud, S.: Selected Papers on Hysteria and Other Psychoneuroses, translated by A. A. Brill, Nervous and Mental Disease Monograph Series no. 4, New York, Nervous and Mental Disease Monographs, 1920. (*c*) Breuer, J., and Freud, S.: Studies in Hysteria, translated by A. A. Brill, Nervous and Mental Disease Monograph Series no. 61, New York, Nervous and Mental Disease Monographs, 1936. (*d*) Fenichel, O.: Outline of Clinical Psychoanalysis, New York, The Psychoanalytic Quarterly Press, New York, W. W. Norton & Company, Inc., 1934. (*e*) Kretschmer, E.: Hysteria, translated by O. H. Boltz, Nervous and Mental Disease Monograph Series no. 44, New York, Nervous and Mental Disease Monographs, 1926.

12. (*a*) Briquet.[8] (*b*) Savill.[9] (*c*) Mitchell, S. W.: Lectures on Disease of the Nervous System, Especially in Women, ed. 2, Philadelphia, Lea Brothers & Co., 1885. (*d*) Wechsler, I. S.: Textbook of Clinical Neurology, ed. 6, Philadelphia, W. B. Saunders Company, 1947.

13. Hurst, A. F., and Symms, J. L. M.: A New Group of Hysterical "Stigmata," in Seale Hayne Neurological Studies, edited by A. F. Hurst, London, Oxford University Press, 1920, p. 21.

14. (*a*) Babinski.[10d] (*b*) Hurst.[13]

15. Wheeler, E. O.; White, P. D.; Reed, E. W., and Cohen, M. E.: Neurocirculatory Asthenia (Anxiety Neurosis, Effort Syndrome, Neurasthenia): A 20 Year Follow-Up Study of 173 Patients, J. A. M. A. 142: 878 (March 25) 1950.

16. (*a*) Freud.[11b] (*b*) Breuer and Freud.[11c] (*c*) Fenichel.[11d] (*d*) Kretschmer.[11e]

The question arises whether or not these patients might have some psychiatric disorder other than hysteria. The symptoms include those of anxiety neurosis (neurasthenia, neurocirculatory asthenia), but more and different symptoms occur in hysteria than in that disorder, according to the clinical picture described elsewhere.[15] During the time of this study the diagnosis of hypochondriasis was practically used not at all, and it is possible that in studies by others this diagnosis might have been used in some of the patients. The clinical features of that disorder are not clear to us. Finally, no evidence of serious psychiatric disease requiring institutionalization was elicited in the follow-up period. No other psychiatric diagnosis could be made reasonably in these patients.

It is believed that the symptoms presented here are characteristic of hysteria as it occurs today, and that this picture is probably what others have observed and termed hysteria. Other methods of diagnosing hysteria are in general use. Some clinicians rely on finding that the patient has a worry, problem or conflict. In our opinion this is so nonspecific that it is grossly unreliable. Other writers emphasize specific psychological "mechanisms" such as "conversion" or specific "complexes"[16] as important in the diagnosis of hysteria. These approaches have arisen largely from limited, uncontrolled observations on isolated cases, from speculation or from attempts to apply unproved theories and are not based on facts; in addition, the processes postulated are too complicated for ready clinical diagnostic purposes.

Some clinicians feel, furthermore, that the absence of a diagnosis or the presence of unexplained or peculiar symptoms or signs is an adequate basis for the diagnosis of hysteria; we believe that this method is grossly unreliable. Still other observers attempt to diagnose hysteria by trying to ascertain whether the symptoms and signs, neurological or otherwise, do or do not follow what they consider to be known "anatomic and physiologic boundaries." All these methods of attempting to diagnose hysteria fail to take into account the entire symptomatic clinical picture. Instead, they attempt to use some special theory or belief as to the nature of hysteria rather than apply the tested system of using history and physical examination in arriving at a diagnosis.

From the results of this investigation, it seems proper to suggest that the diagnosis of hysteria might be made by following the standard procedure used in the general field of diagnostic medicine: that is, determining the facts of the chief complaint, past history, physical examination and laboratory investigation. If the relevant symptoms of hysteria are known, this method can be applied by any physician without the use of special techniques, dream analysis or prolonged investigation of psychological conflicts. We believe that in our hands, and in the hands of residents and interns who have been instructed in these methods, this approach to hysteria has offered a useful tool for accurate diagnosis. It is suggested that the use of this method will allow the observer to diagnose hysteria when it really exists and to avoid making a false diagnosis of hysteria when it does not exist. It is further believed that this offers a sound basis for further clinical studies and for clinical investigation, which must always rest on the basis of accurate clinical observations.

These studies give no information about the cause of hysteria or about the specific mechanisms of symptoms. It is believed that these are unknown. Further, it is believed that they will be discovered by scientific investigation, rather than by the use of nonscientific methods, such as pure discussion, speculation, further reasoning from the dictums of "authorities" or "schools of psychology" or the use of such pretentious undefined words as "unconscious," "depth psychology," "psychodynamics," "psychosomatic," and "Oedipus complex," and that fundamental investigation must rest on a firm clinical basis.

CONCLUSIONS

1. From this study of 50 cases of hysteria in a civilian hospital it is concluded that hysteria probably has a characteristic clinical picture.

2. The age of onset was less than 35 years in all patients.

3. The disorder was seen only in women. It was concluded that, if patients with compensation, pension, insurance and service or veterans' problems were excluded, hysteria is seen rarely or not at all in men.

4. The illness was never monosymptomatic. No patient had fewer than 11 symptoms. The mean number was 23.

5. Characteristic features include lack of chief complaints, history of excessive surgical operations and hospitalizations, multiplicity of vaguely described present complaints, dysmenorrhea, sexual frigidity and dyspareunia, a friendly and overtalkative manner during the examination and a dramatic manner of describing past symptoms and illnesses.

6. The clinical picture of hysteria in civilian women is not the same as that seen in men with diagnoses of "hysteria" in service hospitals, or in patients, men or women, with obvious compensation and pension problems.

7. The conventional method of diagnosis employed in medical practice, that is, the use of history, examination and relevant laboratory data, seems equally applicable to the diagnosis of hysteria and seems preferable to attempts to use unproved psychological theories or complexes for this purpose.

8. As judged from a short term follow-up, this concept of hysteria and its diagnostic features seems reliable enough to warrant further clinical trial and to serve as a basis for further research.

Pregnancy and Diabetes.—Diabetes is a serious complication of pregnancy, in that the fetal mortality has been considerably higher than in normal pregnancy. In the past, mortality rates of infants have ranged between 30 and 50 per cent. The last decade, however, has witnessed a growing awareness on the part of obstetrician, internist and pediatrician of the problems inherent in pregnancy complicated by diabetes. As a result of increased knowledge and experience, fetal mortality has been lowered to the point where the physician may assure the average diabetic patient that pregnancy can be undertaken, with a good chance of delivering a live and healthy infant.—William P. Given, M.D., R. Gordon Douglas, M.D., and Edward Tolstoi, M.D., Pregnancy and Diabetes, *The Medical Clinics of North America*, May, 1951.

EVALUATION OF ADEQUATE ANTEPARTUM CARE FOR THE CARDIAC PATIENT

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In reviewing the causes of maternal deaths in the Department of Obstetrics at the Cook County Hospital, we found that in an 11 year period only three women with adequate antepartum care had died of heart disease and its complications. In the same period however, 21 pregnant women with cardiac disease who had inadequate or no antepartum care died. This seemed to us significant enough to warrant a careful study of the value of antepartum care to pregnant women with cardiac disease.

The Department of Obstetrics at the Cook County Hospital has had a special clinic for pregnancy-complicating heart disease since 1925. In 1935 one of us (J.E.F.)[1] reported on 126 closely controlled pregnant women with heart disease. In 1937 Engbring and Sutton[2] reported on the clinic. There was one death from malignant endocarditis in these two groups of patients who had been under the constant direction of the prenatal cardiac clinic.

TABLE 1.—*Ages of Patients Referred to the Prenatal Cardiac Clinic*

Age, Yr.	Total	Per Cent
Under 20	269	26.12
20-29	529	51.36
30-39	191	18.54
40 and over	38	3.69
Not given	3	0.29
Total	1,030	100.00

TABLE 2.—*Cardiac Status*

Classification	No.	Per Cent		
Definite organic heart disease	460	44.66		
Normal hearts	88	8.54		
Functional group	482	46.80		
Systolic murmurs often complicated by arrhythmia			429	41.65
Miscellaneous, accounted for by symptoms, arrhythmias without murmurs			53	5.15

The material presented here covers an 11 year period, from July 1936 to July 1947. During this period 28,668 patients were admitted to the prenatal clinics, of whom 1,030 (3.59 per cent) were referred there for cardiac evaluation. These women were referred by the attending and resident staff of the obstetrical department of the hospital, the prenatal clinics of the Chicago Board of Health and the Infant Welfare Society and local practitioners.

The reasons for the patients' referrals were the following: histories of heart disease; symptoms of possible or probable heart disease, such as dyspnea, edema, tachycardia, chest pain or heart consciousness; presence of typical lesions, especially those of rheumatic heart disease; murmurs of unknown origin, and arrhythmias or clinical signs of hyperthyroidism. Of the 1,030 referred patients, 765, or approximately three fourths (74.27 per cent), were Negro, a ratio of 3:1, which corresponds essentially with the racial distribution of all antepartum admissions.

The length of observation varied from a single visit to repeated visits over a period of years. Two hundred and ninety-six women were observed for a period of one year or more, and, of these, 67 were observed for a period of five to 11 years.

Approximately one fourth (26.12 per cent) of the group (table 1) was below the age of twenty. One half of the group was in the 20 to 29 age bracket. In the third decade, the majority of patients referred were under the age of 35, and only 3.69 per cent were over the age of 40.

The number of children of each mother varied from one to four; the average was 2.53. This relatively low figure is due to the high per cent of primiparas (456 or 45.9 per cent) who attended the clinic.

INCIDENCE, TYPES AND DISTRIBUTION OF HEART DISEASE

Of the 1,030 patients studied, not all were found to have definite organic heart disease. Some were normal, while others manifested the functional heart of pregnancy syndrome.

The incidence of organic heart disease (table 2) in our 1,030 patients is 44.66 per cent, which is higher than the 25 per cent reported by Hamilton and Kellogg[3] and the 21.6 per cent of Engbring and Sutton[2] in similar studies. Some of the disparity is explained by the differences in the degree of criteria used to differentiate the organic heart disease from the functional heart disease of pregnancy.

The syndrome of functional heart disease has also been called gestatory heart disease. Anatomic changes due to increased cardiac work, added cardiac strain and rotational changes caused by the growing uterus are responsible for variations in sound, rhythm and such symptoms as palpitation and dyspnea. This syndrome presents a problem in diagnosis only during the last trimester. The differentiation of functional from organic heart disease is important from the standpoint of therapy and prognosis. Functional disturbances of the heart do not require any therapy other than reassurance and mild sedation.

The incidence of murmurs varies widely. In comparable studies Jensen[4] found values ranging from 0.71 to 75 per cent, with an average of 28 per cent; Sodeman[5] reported an incidence of 45 per cent, and Engbring and

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[1] Fitzgerald, J. E.: Management of Pregnant Women with Heart Disease, Am. J. Obst. & Gynec. **29**: 53-61 (Jan.) 1935.

[2] Engbring, G., and Sutton, D. C.: Heart Disease and Pregnancy, Illinois M. J. **72**: 147-153 (Aug.) 1937.

[3] Hamilton, B. E., and Kellogg, F. S.: Cardiac Disease and Pregnancy: Medical and Obstetric Handling, J. A. M. A. **91**: 1942-1944 (Dec. 22) 1928.

[4] Jensen, J.: The Heart in Pregnancy, St. Louis, C. V. Mosby Company, 1938, p. 82.

[5] Sodeman, W. A.: Cardiac Changes in Pregnancy Unrelated to Usual Etiologic Types of Heart Disease, Am. Heart J. **19**: 385-397 (April) 1940.

Sutton[2] reported an incidence of 37.2 per cent. Our incidence was 41.6 per cent.

The distribution of the 460 organic heart lesions is shown in table 3. There were 426 (92.60 per cent) lesions of rheumatic origin, while 34 (7.4 per cent) constituted all other groups. This marked preponderance of rheumatic fever sequelae is easily explained by the well known tendency of rheumatic heart disease[6] to occur in the young.

Before we discuss this group further, it is desirable to give our interpretation of the terms involved. Following the lead of Engbring and Sutton,[2] we believe that the initial lesion in the valves is one of insufficiency or regurgitation. After approximately two years, stenosis takes place. Clinically the stenotic lesion is the predominant one. The term "mitral heart disease" is used to denote the presence of insufficiency and/or stenosis and, as such, is synonymous with the expression "double mitral."

Histories of rheumatic fever were obtained from 174, or 40.7 per cent, of the patients (table 4). This tends to confirm the findings of Edward Stieglitz[7] that half of the maternity patients with organic heart disease have no knowledge of the cardiac disorder prior to its discovery at the antepartum examination.

Syphilitic heart disease with positive serologic reaction was encountered in five instances. One lesion was of the aortic insufficiency type, and four were aortitis. All were treated, and the deliveries and puerperia were uneventful. The infants were free from infection during the period of observation. Two of these patients were 22 years of age, and the others were 34, 36 and 41 years respectively. The mean number of children was 2.5. There were no complications or deaths in this group.

Three instances of thyrotoxicosis associated with mitral heart disease were found. The typical symptoms of palpitation, tachycardia, heart consciousness, moist skin, nervousness, tremor and increased metabolic rates were noted in all three women. In one patient, who had undergone thyroid operations on two previous occasions, a complicating auricular fibrillation with a recurrence of toxicity developed, and she had to undergo a third thyroid operation. All three of these women were in the early thirties—further evidence that thyrotoxicosis elects the third decade as its most frequent time of appearance.

Hypertensive heart disease was present in 22 instances. In contrast to rheumatic heart disease, this condition was found in relatively older patients. The higher ratio of Negro to white patients also illustrates the tendency of that race toward hypertensive cardiovascular disease in the northern environment. The average age of this group on admission was 32 years.

Congenital heart disease was noted in three patients. They had disease of the patent ductus arteriosus type, as revealed by physical examination, fluoroscopy and roentgenography. Their ages were 14, 16 and 18 years respectively, and they had no history of decompensation. Only one knew of the presence of heart disease. Their labors were of average duration, and they were delivered of normal term infants, by means of episiotomy and low forceps while under pudendal block anesthesia. The puerperal courses were uneventful.

Coronary sclerosis was found in one patient. She was a 43 year old white multipara, who had been followed at another clinic for three years and was taking digitalis and potassium iodide. She had a history of recurrent attacks of dyspnea, with some precordial pain; there were findings of an apical systolic murmur, left ventricular enlargement, gallop rhythm and blood pressure of 120/90.

Auricular fibrillation beginning in pregnancy or puerperium was encountered four times. One patient was a Negro primigravida, 32 years of age, in whom the auricular fibrillation was associated with mitral heart disease and thyrotoxicosis. The second was a sextiparous, multigravid white woman, 31 years old, who was admitted to the Cook County Hospital because of early decompensation due to chronic rheumatic heart disease with auricular fibrillation. As soon as compensation was established, abdominal hysterotomy and sterilization were performed. She was discharged in a compensated state on digitalis therapy. The third patient was a uniparous, bigravid Negro, 30 years old, who was admitted to the Cook County Hospital when she was three months' pregnant; she had chronic rheumatic heart disease. There was slow fibrillation under digitalis management. This patient aborted spontaneously shortly after admission and refused sterilization. At her only postpartum visit she was in fairly good condition and in a compensated state. The fourth patient was a triparous, quadrigravid white woman, 31 years old, who was five months' pregnant and had mitral stenosis and auricular fibrillation. She was delivered of a full term infant uneventfully. One and a half years later, this patient was in good condition but still with slow fibrillations. The mean age of the fibrillating group was 30.6 years, and the average number of children was 2.6.

TABLE 3.—*Etiological Classification*

Disease		Total	Per Cent
Rheumatic heart disease		426	92.6
Mitral heart disease	394		
Aortic heart disease			
Regurgitation	7		
Stenosis	1		
Combined mitral and aortic disease	24		
Syphilitic heart disease		5	7.4
Hypertensive heart disease		22	
Coronary sclerosis		1	
Congenital heart disease		3	
Thyrotoxicosis		3	
Total		460	100.0

TABLE 4.—*Past History of Rheumatic Group*

Disease	Total
Rheumatic fever	166
Rheumatic fever and scarlet fever	5
Rheumatic fever and chorea	2
Rheumatic fever and diphtheria	1
Chorea	2
Scarlet fever	24
Diphtheria	2
Scarlet fever and diphtheria	5
Typhoid fever	1
Tonsillitis and frequent sore throats	14
No history	204
Total	426

It is evident from the material reviewed that there were many with severe cardiac disease among the 460 women with organic heart defects followed in the pre-

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6. Hollander, A. G., and Goldsmith, I. W., Jr.: Acute Rheumatic Fever Complicating Advanced Pregnancy, Am. J. Obst. & Gynec. 42: 333-335 (Aug.) 1941.

7. Stieglitz, E. J.: Cardiac Disease in Obstetrics, Am. J. Surg. 48: 36-46 (April) 1940.

natal cardiac clinic. However, all these women, with three exceptions, were delivered safely.

During the same 11 year period, the records of the Cook County Hospital show that 55,938 mothers were delivered of viable infants and that the conditions of 704 of these women were diagnosed as organic heart disease. Furthermore, 24 maternal deaths were attributed to cardiac disease and its complications. There were 244 women with organic heart disease who were not seen in the cardiac clinic, and from this group there were 21 deaths. Most of these patients were considered as being of functional class 4 when they first came under our observation.

TABLE 5.—*Fatalities*

Year	Initials	Age	Para	Gravida	Gestation	Antepartum Care	Delivery	Died	Cause of Death and Contributing Factors
1936	J. G.	30	4	8	8 mo.	No	Spontaneous	32 hr. PP.	Rheum. heart: acute failure; clinical impression
1937	L. R.	21	2	3	4 mo.	CCH* cardiac	Hysterotomy	8 days PO.	Endocarditis: obliterative pericarditis, recent embolus in pulmonary artery and lower lobe of right lung; autopsy
1937	O. L.	24	0	1	6 wk.	No	Surgical (for ectopic preg.)	2 days PO.	PO. hemorr. from vessel in post. rt. broad lig.: veg. endocarditis of median aortic leaflet; autopsy diag.
1937	A. S.	18	0	1	7½ mo.	No	Undel.	6 hr. in CCH	Veg. and verrucous endocarditis of mitral and aortic valves: autopsy
1938	C. C.	31	4	5	Term	No	Spontaneous	5 days PP.	Pneumonia: verrucous endocarditis; autopsy
1938	A. G.	23	0	1	5 mo.	No	Spontaneous 5 mo. fetus	7 hr. PP.	Veg. endocarditis with brain emboli: influenzal bronchopneumonia; autopsy
1938	M. T.	18	2	3	10 wk.	CCH cardiac	Hysterotomy	15 days PO.	Sepsis: veg. endocarditis, hemolytic strep. blood cultures; autopsy
1938	K. D.	19	0	1	8½ mo.	CCH 1 visit at 5½ mo.	Spontaneous	50 days PP.	Veg. bacterial endocarditis: pelvic thrombophlebitis, Staph. aureus on blood culture; autopsy
1939	R. A.	?	?	?	7-8 mo.?	No	Spontaneous	37 days PP.	Pulmonary embolus: patient known to have cardiac disease; fibrillation; clinical impression
1939	E. M.	34	4	12	8 wk.	No	Slippery elm ab.	6 days CCH	Acute veg. endocarditis with stenosis: acute metritis and endometritis; autopsy
1940	D. S.	21	0	1	8 mo.	Board of Health clinic 1 visit	Spontaneous	6 days PP.	Veg. and verrucous endocarditis of mitral valve: autopsy
1940	J. K.	23	1	2	Term	CCH 1 visit	Bag induction	24 hr. PP.	Intestinal obstruction: fatal endocarditis with terminal bilateral hydrothorax; clinical impression
1940	M. S.	30	3	3	6 mo.	No	Private M.D., spontaneous at home	2 wk. PP.	Sepsis: thrombophlebitis, endocarditis of mitral valve; autopsy
1941	J. B.	42	1	2	7 mo.	Private M.D.	Undelivered	5 hr. in CCH	Mitral stenosis: fibrillation; auricular insufficiency; clinical impression
1942	M. A.	32	3	4	6 mo.	No	6 mo. S. B.	13 days PP.	Grade 3 rheum. heart (since age 6): acute failure; clinical diagnosis
1942	M. S.	19	2	4	5 mo.	No	5 mo. Ab.	22 days PP.	Vegetative, recurrent endocarditis of mitral valve with infarcts in spleen and kidneys; autopsy
1942	C. O.	30	2	3	Term	No	C. S. for disprop.	30 days PO.	Progressive inf. endocarditis of mitral valve; blood culture hemolyzing strep.; autopsy
1944	J. B.	35	5	6	2 mo.	CCH cardiac	Hysterotomy	6 days PO.	Rheumatic heart disease: Pulmonary and cerebral embolism; clinical impression
1945	H. S.	40	0	1	7 mo.	No	Spontaneous	9 days PP.	Bronchopneumonia: hypertensive heart disease, severe preeclampsia; clinical diagnosis
1945	A. J.	45	13	18	8 mo.	Private M.D.	Undelivered	8 days in CCH	Chronic rheumatic heart: renal disease; autopsy
1945	L. A.	20	1	2	8 mo.	Chicago Maternity Center	Undelivered	27 hr. in CCH	Patent ductus arteriosus: aortic regurgitation, double mitral lesion; clinical diagnosis
1945	R. S.	37	4	5	Term	No	Low forceps caudal	4 days PP.	Endocarditis mitral valve developed on an old fibroplastic deformity: stenosis of mitral valve; autopsy
1946	M. S.	20	0	1	4 mo.	No	Undelivered	1 hr. 15 min. in CCH	Vegetative endocarditis with active mitral stenosis: autopsy
1947	F. H.	24	0	1	Term	No	Outlet forceps	12 hr. PP.	Verrucous endocarditis: pulmonary edema; nephrosis; autopsy

* The initials CCH denote Cook County Hospital.

A summary of the fatalities demonstrates disasters which occur in the absence of adequate antepartum care (table 5).

SUMMARY OF FATALITIES

Fifteen of the patients who died had no antepartum attention whatsoever. Two patients visited local maternal agencies but once and were referred immediately for hospitalization; one died six days after admission, and at autopsy vegetative and verrucous endocarditis of the mitral valve was revealed. The other died 27 hours after admission, with a clinical diagnosis of aortic regurgitation, double mitral lesion and possible patent ductus arteriosus.

The two patients who are said to have been under the care of family physicians entered in a serious state. One patient was seven months pregnant and presented a picture of auricular fibrillation, mitral heart disease and severe decompensation. She died undelivered, five hours after entrance, and permission for autopsy was denied. The second patient was eight months pregnant and died eight days after admission; at autopsy chronic rheumatic heart disease with renal disease was revealed.

Those who attended the Cook County Hospital Clinics only once fared as follows: One entered at term, delivered spontaneously and died 50 days later of subacute bacterial endocarditis. On admission her cardiac lesion was mitral stenosis of rheumatic origin. The second patient, a 23 year old uniparous, secundigravid white woman, entered at term with complaints of backaches, chills and fever, nausea and vomiting. A loud systolic murmur was heard over the entire precordium, but no evidence of decompensation was noted. On the third day of hospitalization, abdominal distention occurred and Levine suction gave no relief. A roentgenogram of the abdomen revealed a greatly distended bowel. It was felt that emptying of the uterus would relieve the distention, and therefore, a successful bag induction was done. The patient was delivered with low forceps while under pudendal block anesthesia eight hours after the bag was placed. She failed to improve, however; her downhill course continued, and she died 24 hours post partum. The clinical impression was endocarditis and bilateral hydrothorax. Multiple emboli producing pulmonary and mesenteric infarction were considered the causes for the chest and abdominal symptoms. Permission to perform an autopsy was denied.

Each of the three patients listed as having had adequate antepartum care died after abdominal hysterotomy. The first patient had a four months pregnancy complicating a rheumatic heart condition. She was a 21 year old biparous trigravida, with a long-standing history of cardiac disease. An abdominal hysterotomy was done, and she died eight days later. At autopsy were revealed old rheumatic endocarditis, obliterative pericarditis, multiple septic infarcts in spleen and kidneys and a recent embolus in the pulmonary artery and the lower lobe of the right lung. The second patient had a 10 week pregnancy complicating a subacute bacterial endocarditis. Hysterotomy was done, and she died 15 days later of sepsis and vegetative endocarditis. The third patient was a 35 year old quintiparous, sextigravid woman, with a long-standing history of cardiac disease, who complained of mild dyspnea, weakness and pressure over the precordium. These complaints had been noticed since the onset of pregnancy. Cardiac findings were those of aortic insufficiency. Abdominal hysterotomy and sterilization were done. Three days postoperatively, a left hemiplegia developed. Six days postoperatively, she suddenly became dyspneic and cyanotic and died. Permission for autopsy was not granted. On a clinical basis. the cause of death was considered to be pulmonary and cerebral embolism.

These three patients demonstrate that the pregnant patient with cardiac disease is not a good surgical risk. All three were considered to be in a state of compensation when operations were performed. The first two patients, who were operated on in 1937 and 1938, might have had a better opportunity for recovery in this day of chemotherapy, antibiotics and abundant blood. In all three instances the cardiac condition was such that the hazard of continued pregnancy would also have been great.

In the entire series of 704 patients with organic heart disease, the pregnancy was interrupted in only eight instances. Before surgical intervention, each patient was hospitalized until a maximum degree of compensation was obtained. Three of this group died, and their cases have been discussed above. The remaining five made uneventful recoveries.

ANALYSIS OF MORTALITY FIGURES

In analyzing the mortality figures, one must remember that the total number of fatalities is small. Accordingly, the figures may be misleading. In general, it is accepted that age definitely influences the outcome of the pregnancy complicating heart disease. The older the patient, whether pregnant or not, the greater is the possibility of a cardiac breakdown.

Gravidity and parity per se have no influence on the outlook for the woman with heart disease, and with careful management the expectancy of life should not be shortened (Engbring and Sutton,[2] Oppel [8] and Jensen [4]).

According to Gorenberg and McGleary,[9] most of the deaths occur during the first eight months of pregnancy; however, death may occur at any time (Stander,[10] Jensen,[11] Stromme and Kuder [12]). Our figures corroborate those of Gorenberg and McGleary.

It is an accepted fact that once a patient is in a decompensated state, she becomes a poor obstetrical risk (table 6). The more frequent the decompensation, however mild, the greater the danger of cardiac death. In this series of 24 deaths, two patients had been in decompensated states before these pregnancies; one of the two died of bronchopneumonia complicating a severe preeclampsia, and the other entered the Cook County Hospital in shock from a ruptured ectopic pregnancy. She was operated on but failed to recover. At autopsy a hemorrhage from a vessel in the posterior portion of the right broad ligament, vegetative endocarditis of the median aortic leaflet and anemic infarcts of both kidneys were revealed. Six patients had been in a repeated decompensated state during these pregnancies and died. Fourteen were in a decompensated state for the first time and died. Two records failed to reveal a past history of cardiac disease. It would seem from this series that cardiac decompensation in a pregnant woman is more serious than that in a nonpregnant woman.

TABLE 6.—*Previous Decompensation in 24 Maternal Deaths*

Previous decompensation, not recurring with this pregnancy	2
Previous decompensation, recurring with this pregnancy	6
Decompensation for the first time with this pregnancy	14
Not recorded	2
Total	24

Since 92.6 per cent of our patients had symptoms of rheumatic heart disease, it is only natural that the complications associated with this disease predominate as the most frequent cause of death. Accordingly, the presence of endocarditis was proved at autopsy in 15 cases, and in one case it was diagnosed clinically. There were five deaths attributed to acute failure of chronic rheumatic

heart. Auricular fibrillation was present in two patients; in one it was associated with rheumatic heart disease, and in the other it was associated with a fatal pulmonary embolus.

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[8] Oppel, T. W.: Congestive Heart Failure in Pregnancy, Am. J. Obst. & Gynec. 39: 24-32 (Jan.) 1940.

[9] Gorenberg, H., and McGleary, J.: Rheumatic Heart Disease in Pregnancy: Evaluation of History, J. M. Soc. New Jersey 37: 114-115 (March) 1940.

[10] Stander, H.: Treatment of Heart Disease in Pregnancy, Am. J. Obst. & Gynec. 44: 714-722 (Oct.) 1942.

[11] Jensen, J.; Wegner, C.; Keys, E. H., Jr., and Smith, H. R.: Heart Disease and Pregnancy: 8 Years' Experience, Am. J. Obst. & Gynec. 39: 443-449 (March) 1940.

[12] Stromme, W. B., and Kuder, K.: Heart Disease in Pregnancy, Am. J. Obst. & Gynec. 52: 264-272 (Aug.) 1946.

MANAGEMENT OF THE PREGNANT PATIENT WITH CARDIAC DISEASE

The management of the pregnant woman with cardiac disease should begin long before the onset of gestation. It should date back to the day of her initial illness. Marriage and pregnancy call for reevaluation of her cardiac functional capacity. The pregestational classification of her cardiac status offers a good index of what may be expected.

During pregnancy a study should be made of the patient's functional capacity; she should then be classified in one of the four classes specified by the American Heart Association and her activities regulated accordingly. We utilize a dietary regimen which supplies food essentials and which at the same time avoids causing digestive distress. Usually it is low in caloric value, salt and fat, moderate in carbohydrate and high in protein. Every effort is made to keep the patient's total weight gain at 20 pounds (9.1 Kg.) or less.

The barbiturates are used freely in this group of patients. Digitalis is not employed routinely and quinidine seldom and only when indicated. Should digitalization appear necessary, the patient is hospitalized for study and treatment.

Bed rest is encouraged. All patients are asked to rest one hour and preferably two each afternoon. They are instructed to sleep at least eight hours each night. Bed rest constitutes the most effective single therapeutic agent in the treatment of heart disease. One of us (J. E. F.) [1] reported that absolute bed rest reduced the incidence of decompensation in pregnant patients with cardiac disease from 22.3 to 2.5 per cent. Gorenberg [13] stated that absolute bed rest reduced the maternal mortality rate from 3.5 per cent to 0.64 per cent. According to Claha,[14] decompensation during labor and the puerperal period occurs about five times as frequently in women who have inadequate bed rest as it does in those who have frequent and prolonged rest periods.

Functional class 1 patients usually do not require hospital care until the onset of labor. Class 2 patients are admitted at the time of diagnosis and are hospitalized until they become class 1 and are then followed in the prenatal cardiac clinic. These patients are subsequently hospitalized one week before their expected date of delivery. Class 3 and class 4 patients are admitted promptly for study and treatment. The patients with severe cardiac disease are hospitalized for the remainder of the gestational and puerperal periods or until compensated.

In our opinion the patient with cardiac disease may be safely delivered from below, if there is no obstetric contraindication. The cardiac condition per se does not necessitate a cesarean section. On rare occasions, however, surgical intervention may be necessary because of obstetrical complications. We do not agree with the contention that section is less hazardous to the damaged heart than a well managed normal labor. Cesarean section adds the burden of laparotomy as well as its potential complications of ileus, sepsis, thrombosis and embolism. Gorenberg and McCleary [10] have shown that the morbidity and mortality rates are higher when cesarean section is employed. Pregnant women with cardiac defects are exceedingly poor surgical risks. Therefore, whenever possible, one should allow the baby to deliver through the natural and safest route, through the vagina.

The cardiopath in labor requires constant vigilance, with particular attention devoted to pulse and respiration. Morphine or meperidine (demerol®) hydrochloride with scopolamine hydrobromide is used routinely. Digitalis and oxygen are added if the pulse rate is over 110 a minute and the respiratory rate is over 24. The second stage of labor is conducted so that it is as short as possible, but at all times undue manipulations are avoided. A low forceps delivery is done as soon as obstetrical conditions are present. Pudendal block anesthesia and adequate episiotomy are routine.

Care of the cardiopath does not cease with delivery. We have seen women deliver without difficulty and later show signs of decompensation. Sepsis is especially guarded against. Mild sedation is maintained, and longer periods of bed rest are required than for normal women. No patients are discharged until compensation is established. They are released with full instructions on dietary and therapeutic management and requested to report to the cardiac clinic two weeks after discharge for subsequent follow-up care and observation.

SUMMARY

1. The study covers the management of 704 mothers with organic heart disease out of a total of 55,938 women delivered of viable infants in an 11 year period at the Cook County Hospital.

2. Of the 24 maternal deaths in cardiac patients reviewed, only three patients had adequate antepartum care.

3. The value of antepartum care in the pregnant cardiac patient is demonstrated.

104 South Michigan Avenue (3).

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[13] Gorenberg, H.: Rheumatic Heart Disease: A Controllable Complication of Pregnancy, Am. J. Obst. & Gynec. **45**: 835-840 (May) 1943.

[14] Claha, J.; Klein, M., and Greenstein, N.: Rheumatic Heart Disease in Pregnant Women: Treatment in a City Hospital, New York State J. Med. **40**:1242-1247 (Aug. 15) 1940.

Say Not Too Much, Speak It Gently.—Your conduct in the sick-room, in conversation with the patient or his friends, is a matter of very great importance to their welfare and to your own reputation. . . . Say not too much, speak it gently, and guard it cautiously. Always remember that words used before patients or their friends are like coppers given to children; you think little of them, but the children count them over and over, make all conceivable imaginary uses of them, and very likely change them into something or other which makes them sick, and causes you to be sent for to clean out the stomach you have so unwittingly filled with trash; a task not so easy as it was to give them the means of filling it. The forming of a diagnosis, the utterance of a prognosis, and the laying down of a plan of treatment, all demand certain particular cautions.—Oliver Wendell Holmes, Currents and Counter Currents in Medical Science, Boston, Ticknor & Fields, 1861, p. 399.

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PHYSIOLOGIC THERAPY FOR URINARY STRESS INCONTINENCE

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Poor control of the bladder outlet is observed in approximately 5.5% of all adult women.[1] To the patient the condition is always embarrassing, often humiliating, and at times incapacitating. In the past patients with more advanced urinary stress incontinence were treated by surgical intervention, with results that were not always satisfactory. But little could be done for the great number of women with slight or moderate complaints. As operation is not indicated in such cases, temporizing procedures had to be applied that all too often resulted in dissatisfaction of patient and physician alike. In the meantime, however, it has been demonstrated that in the overwhelming majority of cases,[2] even with a history of childbirth injury, urinary stress incontinence is due to inherent weakness of the muscles surrounding bladder neck and vagina. This condition is amenable to correction through reeducation of muscular function and resistive exercises that can be instituted as a simple office procedure.

PHYSIOLOGIC CONSIDERATIONS

The physiologic therapy of urinary stress incontinence was developed as the result of experience gathered in several thousand examinations carried out over a period of 14 years preceding 1946. These examinations of the pelvic outlet, however, differ in one important respect from the usual gynecologic investigation. Early in my studies it had become apparent that presence or absence of muscular function had an important bearing on the status of the pelvic outlet, and, accordingly, the degree of contraction that could be elicited through voluntary action was determined in every case.

On the strength of such routine examinations for function, it has been possible to establish the fact that in all patients suffering from simple urinary stress incontinence the voluntary muscles in the region of the vesical neck show evidence of loss of function and atrophy, often simulating a degree of paralysis. This impaired status of the neuromuscular structures can only in exceptional instances be traced to congenital anomalies or to disease of the spinal cord but is generally due to failure to develop a normal action pattern early in life.

The process is most pronounced in the pubococcygeus muscle, which is the largest and strongest of the five diaphragms forming the pelvic floor.[3] Gainey [1] reported atrophy of the levator group in 31% of 1,000 postpartum patients who had received excellent obstetric care. In a series of 300 patients suffering from various degrees of incontinence, I noted lack of function and atrophy of the pubococcygeus muscle in all, including 24 nulliparous women and two patients who had been delivered by Caesarean section. It is obvious that in the latter instances lack of function cannot have been caused by injury of the genital hiatus. Also, when the early histories of 100 primiparae and multiparae with a complaint of urinary stress incontinence were closely studied, it was found that in at least 29 instances weak control of the bladder outlet had definitely existed prior to the birth of the first child. All this indicates that the condition described constitutes a distinct functional entity, which it is proposed to call the "syndrome of lack of awareness of function and coordination of the pubococcygeus muscle."

It is the predominant function of the bladder to collect and retain the urine, while the urethra acts primarily as a canal for emptying the bladder. In normal women the mechanism for holding urine in the bladder without conscious effort and for voiding under voluntary control depends upon balanced reflexes of the neuromuscular tissues situated at the juncture of vesical neck and proximal urethra. Such balance of the reflexes is maintained by the pubococcygeus muscle with its visceral extensions, which have been described in detail by Curtis and Anson.[4] Control of the bladder outlet, it is true, is not impaired in all women with faulty function of the pubococcygeus muscle. However, it has been established beyond any doubt that loss of function of the pubococcygeus muscle is present in all women with true urinary stress incontinence.

EXAMINATION

Examination of patients for functional deficiencies of the muscles of the genital hiatus consists of observation, palpation, and measurement of the strength of contractions. The patient is placed into the lithotomy position and requested to draw up, draw in, and retract the perineal muscles. Since many patients do not understand these instructions, they are asked to contract as though to check a bowel movement or stop the flow of urine. It is then observed whether this effort results in retraction of the perineum and, especially, of the meatus.

One finger is introduced into the vagina, and its entire circumference is palpated, especially at the level of the middle third. The patient is instructed to repeat the contractions and also to contract the vaginal muscles upon the examining finger. The result of each single effort to contract is carefully noted, and it will be found that in about 60% of all women normal contractions occur. In more than 30% of women, however, no contractions, or only weak or delayed contractions, can be elicited in spite of diligent efforts. Patients with urinary stress incon-

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[1] Gainey, H. L.: Post-Partum Observation of Pelvic Tissue Damage, Am. J. Obst. & Gynec. **45**: 457-466 (March) 1943.

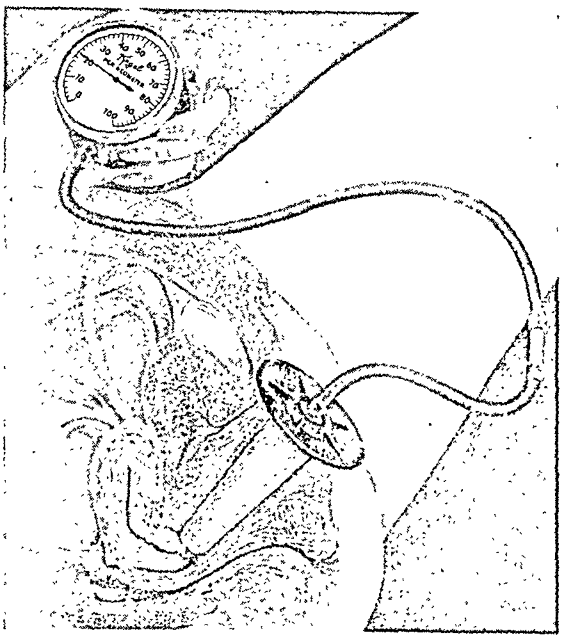
[2] Kegel, A. H.: Treatment of Stress Incontinence of Urine, in Meigs, J. V., and Sturgis, S. H.: Progress in Gynecology, New York, Grune & Stratton, Inc., 1950, vol. 2, pp. 690-697.

[3] Mengert, W. F.: Mechanics of Uterine Support and Position: I. Factors Influencing Uterine Support; An Experimental Study, Am. J. Obst. & Gynec. **31**: 775-782 (May) 1936.

[4] Curtis, A. H.; Anson, B. J., and McVay, C. B.: Anatomy of the Pelvic and Urogenital Diaphragms, in Relation to Urethrocele and Cystocele, Surg., Gynec. & Obst. **68**: 161-166 (Feb.) 1939. Curtis, A. H.; Anson, B. J., and Beaton, L. E.: Anatomy of Subperitoneal Tissues and Ligamentous Structures in Relation to Surgery of the Female Pelvic Viscera, ibid. **70**: 643-656 (March) 1940. Curtis, A. H.; Anson, B. J., and Ashley, F. L.: Further Studies in Gynecological Anatomy and Related Clinical Problems, ibid. **74**: 709-727 (March) 1942. Stover, R. F.: Significance of Soft Tissue Injuries, J. Florida M. A. **33**: 257-260 (Nov.) 1946.

tinence often remark that they had *not* known that voluntary contraction of these muscles is possible.

Lack of function of the pubococcygeus muscle is ordinarily accompanied with atrophy that becomes apparent to the palpating finger as marked roominess of the vagina in all directions, immediately within the introitus or at the level of the middle third of the vagina. Usually the walls are thin and bulging, show poor tone, and are freely movable, as if detached from their surrounding structures, conditions generally diagnosed as cystourethrocele or moderate degrees of uterine prolapse. In patients suffering from urinary stress incontinence, slight tensing or weak contractions of the pubococcygeus muscle may or may not be felt in the anterior quadrant of the vagina; however, even the slightest contractions elicited are of importance in physiologic therapy. Residual function is most frequently observed in the posterior quadrant of the perineum and usually involves the superficial pillars of the levator ani. Contractions of the posterior plate of the levator sling may also be palpated behind the rectal pouch, and tensing of these muscles can often be traced to their origin in the os pubis.



The Perineometer, showing the resistance chamber in position, connected with a manometer for visual guidance in muscle education and resistive exercises of the pubococcygeus muscle. (Instruments for this study were supplied by the Perineometer Research Laboratory, Los Angeles 5.)

Further findings of prognostic importance include diastasis of the pubococcygeus muscle as well as unilateral atrophy due to injury.

The strength of contractions is estimated from the impression gained through palpation or is actually measured with the aid of the Perineometer (Figure). This instrument consists of a pneumatic resistance chamber to which a manometer designed to register the strength of contractions of the muscles surrounding the vagina is attached. In women with normal function of the pubococcygeus muscle the reading will amount to 30 to 60 mm. Hg, while in patients with urinary stress incontinence muscular function is poor or absent, and the manometer registers a pressure of 0 to 5 mm. Hg.

In order to obtain correct measurements, it is necessary that the patient confine her efforts at contractions only to the muscles in the region of perineum and vagina. Patients with lack of awareness of function of the pubococcygeus muscle will invariably try to substitute contractions of extraneous muscles, especially those of the abdominal wall and gluteal region.

THERAPY

Perusal of seven current textbooks on obstetrics and gynecology failed to reveal any mention of active exercises for the relief of urinary stress incontinence. Miller[5] has advocated teaching women to tense their sphincter mechanisms in order to prevent urinary stress incontinence in later life. According to Davies,[6] patients with urinary stress incontinence who present no gross anatomical injuries should be trained to develop the voluntary muscles of the urethra by interrupting the urinary stream during the act of voiding and through contractions during coitus. The crucial importance of the pubococcygeus muscle, however, has not been fully appreciated, and the therapeutic method described in the following is, as far as is known, the first attempt to train this muscle specifically in order to improve sphincteric function of the vagina and bladder outlet.

Physiologic therapy is divided into two phases: muscle education and resistive exercise.[7] The only way in which a patient can become aware of her ability to contract muscles that she has never before used voluntarily is through association with other muscular functions in the neighborhood of the pubococcygeus muscle, which are already under conscious control. While the palpating finger is over the pillars of the pubococcygeus, the patient is requested to contract the muscles of which she is cognizant, and a tensing of the pillars may be felt in most cases on exertion of strong efforts as though to stop a bowel movement, to stop the flow of urine, to retract the perineum, or to squeeze the palpating finger. It is made certain that the patient understands clearly which specific effort leads to tensing of the pubococcygeus, and she is instructed to repeat exclusively these contractions. In the course of frequent repetitions of these efforts over a period of weeks, the strength of contractions will increase and the patient will establish conscious control of the pubococcygeus muscle. The procedure may be compared with the effort to teach a left-handed person to use the right hand, or, for that matter, to teach wiggling of the ears with the aid of a mirror.

While voluntary contractions alone will increase the strength and improve the function of the major components of the levator sling, they have little effect upon the extensions of the pubococcygeus muscle, which interdigitate and insert into the intrinsic musculature of the walls of the proximal urethra and middle third of the vagina. These small fibers, however, which evidently are closely related to the sphincteric mechanisms of the bladder neck and its functions, must be exercised through contractions extending over the entire circumference of the vagina. It is the purpose of the Perineometer, the main part of which consists of a resistance chamber of anatomic conformity, to serve as the object against which such squeezing contractions of all vaginal muscles can be exerted. Both muscle education and resistive exercises are facilitated through visual control of the effort exerted, and for this purpose a calibrated manometer has been attached to the cylindrical diaphragm.

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[5] Miller, N. F., and Hyde, B.: Gynecology and Gynecologic Nursing; with Chapters on the Gynecology Operating Room by Molly Kowal, and on the Psychosomatic Approach in Gynecology by Sprague Gardiner, Philadelphia, W. B. Saunders Company, 1949, pt. 4, p. 134.

[6] Davies, J. W.: The Pelvic Outlet—Its Practical Application, Surg., Gynec. & Obst. **58**: 70-78 (Jan.) 1934; Urinary Stress Incontinence: Anatomical Defect Found and Rational Method for Its Treatment, ibid. **67**: 273-280 (Sept.) 1938.

[7] Jones, E. G.: Role of Active Exercise in Pelvic Muscle Physiology, West. J. Surg. **58**: 1-10 (Jan.) 1950.

After the physician has made sure that the patient contracts the correct muscles and understands how to use the Perineometer, she is instructed to maintain a routine of adequate exercises—20 min. three times daily, or a total of 300 contractions. A weekly check of the patient's efforts is essential; in the beginning of therapy the majority of patients are, as a rule, not using the right muscles and, therefore, need careful reinstruction. It is, furthermore, highly important that undue fatigue be avoided.

CLINICAL COURSE AND RESULTS

The clinical course and results of therapy [8] vary in two groups of patients. In urinary stress incontinence of the simple type, i. e., in cases in which partial control exists and the patient becomes incontinent only with coughing, sneezing, or straining, prompt improvement, usually in a few weeks, is the rule, while complete relief is observed after six to eight weeks. Urinary stress incontinence of the simple type is very frequent, and in the present series of over 500 cases more than 75% of all patients belonged in this category. In the past such women tolerated this annoying and embarrassing condition, with all its possible undesirable psychological effects, because they felt that it was not serious enough to warrant surgical intervention. With the introduction of physiologic therapy, a quick, reliable, and conservative method of treatment has been developed for a condition for which no suitable therapy had existed heretofore.

A different type of response was noted in women with incapacitating urinary stress incontinence of a degree that in the past had been usually treated by surgical intervention. Most of these patients had for many years worn pads to absorb the urine and had practically lost their normal reflexes of urination. In this subgroup of 146 cases, furthermore, 66 women had been subjected to surgical measures involving the anterior vaginal wall, and these same patients had additionally undergone 60 major pelvic operations. In spite of this, complete relief was obtained by means of physiologic therapy alone in 84% of all instances. The remaining 16% with partial relief or failure included patients with such complicating factors as multiple surgical failures, senility, diabetes, obesity, and mental deficiency. True stress incontinence is distinguished from incontinence due to neurological disease and urge incontinence traceable to upper urinary tract lesions.

Ordinarily it proved difficult to teach women with incapacitating urinary stress incontinence awareness of function of the pubococcygeus muscle, and in some instances various methods of instruction had to be employed over a year's time before voluntary contractions of the muscle could be established. In those patients who had undergone radical surgical procedures in the region of the urethra, resistive exercises had to be continued for a longer time before symptomatic improvement could be observed, and in some instances the result remained incomplete. In all types of urinary stress incontinence, however, full and lasting relief may be expected only if the patient does not stop resistive exercises as soon as the first improvement is noted, but continues with the same diligence until not only function has been restored but a strengthening of the supportive and sphincteric structures becomes palpable. Such restoration of tone and function in muscles of the pelvic outlet is comparable with the results observed in other neuromusculofascial structures after specific active exercises.

In this brief presentation of physiologic therapy for the treatment of urinary stress incontinence, it was obviously not possible to touch upon all aspects of the complex subject. It should, however, be mentioned that in the treatment of "symptomatic cystocele" urinary stress incontinence is first relieved by physiologic therapy and the cystourethrocele is repaired subsequently. Contraindications for physiologic therapy are negligible, and in no instance was the condition aggravated; some of the most gratifying results were obtained in debilitated women in the eighth decade of life. The most important application of the new method may be prophylactic treatment of women with poor function of the pubococcygeus muscle, especially in the prepartum and postpartum periods, and also before and after all types of plastic operations involving the sphincteric and supportive structures of the pelvic outlet.[9]

Initial results of this therapeutic plan are so encouraging that examination for function of the pelvic muscles is recommended as a routine procedure in all obstetrical and gynecologic patients.

SUMMARY

The physiologic therapy of urinary stress incontinence is a simple and reliably successful office procedure, especially useful for early and moderately advanced cases for which no suitable conservative treatment has existed up to now.

In women with true urinary stress incontinence the muscles of the region of the vesical neck show evidence of loss of function and atrophy. The pubococcygeus muscle possesses visceral extensions that interdigitate with the musculature of the bladder neck. Tone and function of the muscles of the pelvic outlet can be restored through muscle education and active exercises of the pubococcygeus muscle.

Examination and active exercises are facilitated by the use of a specially devised instrument, the Perineometer.

In a series of more than 500 patients continence was restored in 84%. In 70% urinary stress incontinence was of the simple type, the remaining cases being complicated by various factors.

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[8] Kegel, A. H.: Progressive Resistance Exercise in the Functional Restoration of the Perineal Muscles, Am. J. Obst. & Gynec. **56**: 238-248 (Aug.) 1948; Physiologic Treatment of Poor Tone and Function of the Genital Muscles and of Urinary Stress Incontinence, West. J. Surg. **57**: 527-535 (Nov.) 1949.

[9] Bushnell, L. F.: Physiologic Prevention of Postpartal Relaxation of Genital Muscles, West. J. Surg. **58**: 66-67 (Feb.) 1950.

METACHRONOUS CARCINOMAS OF THE COLON

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and
A. B. Conger Jr., M.D., Lexington, Ky.

Metachronous cancers of the large bowel are unique enough in occurrence to be considered almost bizarre. Ewing and Boyd, among others, formerly believed that one carcinoma developing in a person conferred a certain immunity that prevented another primary carcinoma from developing, in contradistinction to a recurrence or a distant metastasis. As late as 1930, Lockhart-Mummery [1] stated that there seemed to be sufficient clinical evidence to support the belief that one malignant growth inhibited the development of a second malignant lesion. However, more recently, with the increasing number of reports [2] of multiple cancers occurring simultaneously (synchronous carcinomas) and with an interval of time between (metachronous carcinmas), an almost diametrically opposite opinion has been thought to be correct. Indeed, Brindley [3] has gone so far as to state that "a patient with one cancer is a good subject for the development of a second, and is more susceptible than one who is cancer-free."

In 1945 Berson and Berger [2e] collected from the literature 66 cases with two, and six cases with three, cancers of the large intestine, to which group they added 13 cases of two cancers and three cases of three malignant growths of the colon. This is strong evidence to support the thesis that the polyps that appear in many colons are the basic factors in cancers of this portion of the alimentary canal.

Synchronous cancers have been relatively common in our experience, particularly in the group of cases termed "familial polyposis." With the increasing development of diagnostic facilities and a better understanding of the pathology involved, it is not rare to find more than one malignancy in the large bowel. The corollary of this statement seems obvious: namely, that one should suspect multiple malignancies and should at least examine the rectum and entire colon prior to an operation for cancer of the lower portion of the gastrointestinal canal. Usually, one does not give a barium sulfate enema to a patient with cancer of the rectum. Experience has taught us, however, that the use of the enema before examination should be routine, except when one fears the production of an acute intestinal obstruction by the opaque medium.

There seems little reason for the surgeon to overlook a second synchronous lesion at operation, and yet this does happen, as is pointed out by Berson and Berger,[2e] who remark, "Unquestionably, many poor results (in the treatment of carcinoma of the large intestine) can be attributed to the fact that a second lesion was missed," and by Norbury,[4] who suggests that a number of cases of so-called recurrence after operation are really due to the presence of another primary lesion. Warren [5] has estimated that the incidence of multiple primary malignancies may be as high as 6 per cent, and we are inclined to agree with him after considerable experience in this field.

Our interest in metachronous malignancies has been stimulated by the fact that we have had, in the past few years, seven patients who have undergone second operations for carcinoma of the large bowel a number of years after removal of a primary carcinoma of either the rectum or the colon. A review of these cases follows.

REPORT OF CASES

Case 1.—W. F. M., a 49 year old white man, was operated on by one of us (F. W. R.) at the Mayo Clinic on May 30, 1930, for a carcinoma of the sigmoid. An obstructive resection was done. The pathologist's diagnosis was grade 1 papillary adenocarcinoma with perisigmoiditis and abscess formation without glandular involvement. The patient was perfectly well for 19 years but was admitted to St. Joseph Hospital, Lexington, on Sept. 23, 1949, with a history of pains in the right side for 10 days. At operation, a large carcinoma was found at the hepatic flexure. The pathological diagnosis was adenocarcinoma and papilliferous mucoid carcinoma, grade 2, in the right colon, with extension into the surrounding fat but without involvement of the lymph nodes. The postoperative course was uneventful, and the patient has been well since.

Case 2.—P. S., a 47 year old white man, was operated on for carcinoma by one of us (F. W. R.) on Dec. 18, 1931, at the Mayo Clinic. The pathologist's diagnosis was grade 1 papillary adenocarcinoma of the rectosigmoid. No glandular involvement was found. A combined abdominoperineal resection was done. The patient was well for 15 years but was admitted to St. Joseph Hospital on Sept. 26, 1946, with a history of mild abdominal discomfort for 18 months. At operation a carcinoma of the cecum was found and removed. The pathologist's diagnosis was large adenocarcinoma of the cecum, grade 2, without glandular involvement. The patient is well at the present time.

Case 3.—A. F. T., a 55 year old white physician was admitted to St. Joseph Hospital on Jan. 31, 1942, and a combined abdominoperineal resection was done for an adenocarcinoma, grade 2, in the rectum, without glandular involvement. The patient was well for seven and one-half years.

On Nov. 22, 1949, while irrigating his single barrel colostomy stoma, he noted a moderate quantity of bright red blood. Examination of the colon after a barium sulfate enema, on November 25, revealed a filling defect in the cecum. On December 2, Dr. A. S. Graham performed a hemicolectomy around to the middle of the transverse colon and reestablished the continuity of the bowel. The pathologist's diagnosis was colloid adenocarcinoma of the cecum, grade 3. The patient is well at present.

Case 4.—W. B., a 46 year old white male teacher, was operated on at St. Joseph Hospital by one of us (F. W. R.) in December 1940. An abdominoperineal resection of the rectum was done for an adenocarcinoma, grade 3, without glandular involvement.

The patient was well for nine years but was readmitted on Sept. 7, 1949 with a history of occasional bleeding from the colostomy stoma for three months before admission. At opera-

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1. Lockhart-Mummery, J. P.: Proc. Roy. Soc. Med. **24:** 198, 1930.
2. (*a*) Bargen, J. A., and Rankin, F. W.: Multiple Carcinomata of the Large Intestine, Ann. Surg. **91:** 583, 1930. (*b*) Schweiger, L. R., and Bargen, J. A.: Multiple Primary Malignant Lesions of the Large Bowel, Arch. Int. Med. **66:** 1331 (Dec.) 1940. (*c*) Nider, G. B.: Multiple Invasive Carcinomas of the Large Intestine, Surgery **20:** 744, 1946. (*d*) Bacon, H. E.: Anus, Rectum, and Sigmoid Colon, ed. 3, Philadelphia, J. B. Lippincott Company, 1949, vol. 2, p. 609. (*e*) Berson, H. L., and Berger, L.: Multiple Carcinomas of the Large Intestine, Surg., Gynec. & Obst. **80:** 75, 1945.
3. Brindley, G. V.: Multiple Primary Malignancies of the Large Intestine, South. M. J. **31:** 355, 1938.
4. Norbury, L. E.: Multiple Primary Malignant Growths, Proc. Roy. Soc. Med. **24:** 6, 1930.
5. Warren, S.: Multiple Cancers of the Human Gastrointestinal Tract, J. Nat. Cancer Inst. **5:** 375, 1944-1945.

tion about 30 cm. of colon proximal to the stoma was resected. The pathologist's diagnosis was adenocarcinoma of the colon, grade 2, without glandular involvement. The patient is well at present.

Case 5.—S. R., a 50 year old housewife, was first admitted on May 3, 1948, to St. Joseph Hospital, where a combined abdominoperineal resection was done for a grade 2 adenocarcinoma of the rectum without glandular metastases. The patient was well for approximately two years.

She was readmitted on Feb. 15, 1950, with a history of severe constipation and the discharge of bright red blood during the previous few weeks. At operation a resection of bowel proximal to the stoma was done for a large adenocarcinoma of the descending colon, grade 4, without glandular metastasis.

Case 6.—J. M., a 61 year old white man, was first admitted to St. Joseph Hospital on July 4, 1935, when a combined abdominoperineal resection was done for a grade 2 adenocarcinoma of the rectum. Three polyps were found in the specimen in addition to the carcinoma, but there was no glandular involvement.

The patient was well for 15 years but was readmitted on Jan. 11, 1950, with a history of constipation and bleeding from the colostomy stoma. At operation a segment of large intestine proximal to the site of the colostomy was removed. It contained a large grade 2 adenocarcinoma from the midportion of the transverse colon and a grade 1 adenocarcinoma in the descending colon, in addition to many adenomatous polyps of the mucosa, without glandular involvement. The patient is well at the present time.

Case 7.—H. T. L., a 42 year old white man, was operated on at St. Joseph Hospital by one of us (F. W. R.) in 1933 for carcinoma of the rectum. A one stage combined abdominoperineal resection was done. The pathologist's diagnosis was adenocarcinoma, grade 2, and polyposis of the rectum, without glandular metastasis.

The patient was perfectly well for 13 years and did not come in for follow-up study during this time. He was readmitted on April 27, 1948, with a history of some prolapse of the colostomy stoma for four or five years and a visible growth on the prolapsed mucosa. On April 30, a portion of large bowel proximal to the stoma was resected, with the specimen showing extensive polyposis in the segment of colon with some polyps showing precancerous hyperplasia. An examination after a barium sulfate enema previous to operation had shown no other polyps, but six months later a repeat examination showed multiple polyps in the cecum. On Jan. 21, 1949, a resection of the remainder of the colon was done for multiple carcinomas [6] of the right colon and cecum, grade 2, with local metastasis.

COMMENT

In every case of multiple carcinoma, there is always some question as to whether the second carcinoma is a new carcinoma, a metastasis or a recurrence of the old one. When Billroth made the first report of multiple carcinomas, in 1889,[7] he set forth some postulates which he thought must be fulfilled before multiple carcinomas could be identified as independent lesions. They are, briefly, as follows: (1) The two growths should differ histologically; (2) Each growth must spring from its parent epithelium, and (3) Each growth must be regarded as responsible for its own group of metastases. Actually, it is impossible for these postulates to be fulfilled in a living patient with two carcinomas of the large bowel, neither of which has metastasized, and Bunting [8] made the statement that, in his opinion, these posulates were meant to apply only to malignant growths arising in different organs. In 1932, Warren and Gates [6] broadened the original postulates as follows: "Each of the tumors must present a definite picture of malignancy, each must be distinct, and the possibility of one being a metastasis of the other must be excluded."

In the cases presented above, each tumor was malignant, each was distinct and, as best we know, the possibility of one being a metastasis of the other has been excluded. Time must be of some importance in this instance, and the fact that these patients were completely well for periods of 2, 7, 9, 12, 15 [8] and 17 years should be of considerable significance, as should be the fact that no other metastases were found at operation or have been discovered so far. This latter helps to fulfil the fourth postulate added by Mercanton,[9] in 1893, to Billroth's original three. He believed that "if, after removal of the two carcinomas, the patient remains free from the disease, the two growths must have been independent else there should have been other metastases." However, too little time has passed since the removal of the second carcinoma for this judgment to apply to our six living patients. Suffice it to say that, with the evidence we have, the second carcinomas were new carcinomas and not recurrences or metastases of the original lesions.

Discussions and theories on the etiological factors of cancer of the large bowel are always interesting and frequently productive, and the exciting work now being carried out by Craigie [10] in England brings the virus hypothesis once again into the foreground. Andrewes [11] has recently made these comments:

> We have noted, in considering viruses of many kinds, how often a virus latently infects its host until a jolt to the virus cell equilibrium brings about visible disease. We have seen how transmissability of a virus, ability to infect the cells, is a varying property that may or may not be present. We have found that virus infection may begin in utero and possibly be transmitted in the germ plasma. Finally, viruses are capable of great feats in the way of variation and adaptation, and they can also cause cell proliferation. We have, therefore, no grounds for maintaining that viruses cannot cause cancer because viruses do not have the qualities necessary to act the part. We need not find it difficult to believe in viruses that are almost ubiquitous, normally cause no visible disease, are transmitted in earliest days of life and only in certain circumstances sustain a jolt that causes them to give rise to new growths.

Certainly this idea answers some questions and is reasonable, but a great amount of work needs to be done before one is justified in accepting it.

At the present, we feel justified in making this statement: Most carcinomas of the large bowel originate in polyps or have polyps as their earliest manifestations. In case 7 presented above, it was apparent from the beginning that the patient had multiple polyposis. He refused to come in for follow-up visits until he had carcinoma in several of his polyps some 15 years later. His father died of "bowel trouble" at the age of 65. No other member of his family has ever had a known malignancy. However, this patient could presumably be included in the class of persons with so-called congenital polyposis.[12] The other six cases are most easily explained by saying that these patients were "polyp formers" and that a second polyp was present at the time of the original operation or developed later, eventually becoming malignant.

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[6] Warren, S., and Gates, O.: Multiple Primary Malignant Tumors, Am. J. Cancer **16**: 1358, 1932.

[7] Billroth, T., and von Winiwarter, A.: Die allgemeine chirurgische Pathologie und Therapie, in 51 Vorlesungen, ed. 14, Berlin, G. Reimer, 1889, p. 908.

[8] Bunting, C. H.: Multiple Primary Carcinomata of the Ileum, Bull. Johns Hopkins Hosp. **15**: 389, 1932.

[9] Mercanton, F.: Des carcinomes primares multiples: Thése de Lansanne, 1893, Rev. med. de la Suisse Rom. **13**: 173, 1893.

[10] Craigie, J.: Pressure Mincer for Preparation of Tumor Suspensions, Brit. J. Cancer **3**: 249, 1949.

[11] Andrewes, C. H.: Adventures Among Viruses: Some Properties of Viruses, New England J. Med. **242**: 161, 1950.

[12] Dukes, C.: The Hereditary Factor in Polyposis Intestine, or Multiple Adenomata, Cancer Rev. **5**: 241, 1930.

Buie [13] has recently stated that "probably 12 to 14 per cent of persons more than 40 years of age have polyps of the colon. One of every 10 persons in this age group has a polyp which can be discovered on proctoscopic examination, and all polyps of the colon are carcinomas or will become carcinomas if they are not destroyed and if the patient lives long enough."

Experience with these cases, six of which have come to our attention in the last two years, as well as the literature, indicate that in every patient who has one cancer of the large intestine a second malignancy may develop many years after the first one.

We believe strongly that every patient who has had a successful removal of a carcinoma of the colon should be seen at least every six months to a year thereafter for the rest of his life. This has been emphasized by several authors,[2e] but it cannot be reiterated too often. At each follow-up visit, a proctoscopic examination and an examination after a barium sulfate enema should be done, in addition to the usual check for metastases. The proctoscopic examination should be done through the colostomy stoma if the rectum has been removed. A double contrast study for polyps not visible at proctoscopy should be done at the time of the examination after a barium sulfate enema. The tannic acid technic, as reported by Wyatt and his colleagues [14] at the meeting of the American Roentgen Ray Society in Cincinnati, October 1949, has been found helpful in showing polyps. In a painstaking search for these, every advantage should be utilized.

It has been our experience that an adequate examination after a barium sulfate enema cannot be done on the same day as a proctoscopic examination, unless there are a fairly long interval and several enemas between the two examinations to remove air put in by the proctoscope. In all, the patient spends only two full days in the hospital each six months unless a lesion is found. This is a small price to pay for continued life and health. If a polyp or new growth is found, obviously it should be radically and rapidly treated.

SUMMARY AND CONCLUSIONS

Seven cases of new carcinoma of the large intestine following resection done two to 18 years previously are reported. The following points are emphasized in the comment regarding these cases:

1. The patients in the cases presented obviously had metachronous carcinomas rather than recurrences or metastases.
2. The incidence of multiple primary malignancies is much higher than is generally realized.
3. We believe that a patient with one cancer is a good subject for the development of a second and may be more susceptible than one who is cancer-free.
4. Suggestions are made regarding follow-up examinations of patients with carcinoma of the large intestine. For the rest of the patient's life, an adequate proctoscopic examination and a roentgen examination after a barium sulfate enema should be done at regular intervals of six months to one year.

409 Security Trust Building.

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[13] Buie, L. A.: Polypoid Disease of the Colon, Postgrad. Med. 5: 177, 1949.

[14] Wyatt, and others: To be published.

PNEUMOPERITONEUM IN THE STUDY OF PELVIC STRUCTURES

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Pneumoperitoneum is a simple and relatively harmless procedure. Since Alvarez [1] introduced the use of carbon dioxide, in 1921, as the gas for pneumoperitoneum, many hundreds of pneumoperitoneum studies have been made throughout this country with but few untoward effects.

As a means of roentgenologic diagnosis, pneumoperitoneum was proclaimed by Case [2] in 1921 to be one of the instances of roentgenologic progress. He called this procedure "the most brilliant diagnostic accomplishment in the last five or six years of roentgenological development."

Excellent scientific papers by Stewart and Stein,[3] Stein and Arens,[4] Lewis,[5] Sante,[6] Faulkner,[7] Stein,[8] Peterson,[9] Martin,[10] Rubin [11] and others have not been able to popularize this excellent diagnostic procedure.

There is still considerable hesitancy on the part of radiologists to develop pneumoperitoneum as a part of their diagnostic procedures. Perhaps this is due to the fact that the contraindications and dangers of induced pneumoperitoneum have been overemphasized. There should be no real danger from this technic in the hands of capable radiologists. The technical features of producing pneumoperitoneum have been thoroughly covered by Stewart and Stein,[3] Lewis,[5] Rubin,[11] Decker,[12] Maxfield and McIlwain,[13] and others. Use of carbon dioxide as the gas for distending the abdomen eliminates the danger of air embolism. The only real contraindications seem to be definite cardiac insufficiency and acute infections. Elevation of the diaphragm by pneumoperitoneum might impose an additional load on an overburdened heart and might thus prove disastrous. The activation of acute infection seems unlikely but might conceivably occur. In our clinic we have used pneumoperitoneum without any evidence of trouble in cases of chronic peritonitis, subdiaphragmatic abscess, pelvic inflammatory disease, chronic bacterial endocarditis and bilateral pleura effusion.

Pneumoperitoneum should be available in all leading roentgenological departments. This will require the en-

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Read before the Section on Radiology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 30, 1950.

[1] Alvarez, W. C.: Use of CO₂ in Pneumoperitoneum, Am. J. Roentgenol. 8: 71 (Feb.) 1921.

dorsement of the roentgenologist, surgeon, internist and gynecologist. It should not be used in lieu of other diagnostic measures; rather, it should be used in conjunction with other clinical and laboratory procedures in those cases in which the diagnosis is obscure. It may confirm clinical impressions when other data are not sufficient for clearcut diagnosis, or it may completely change the clinical impressions.

Pneumoperitoneum is an accurate method of diagnosis enabling the radiologist to study the size, shape and position of liver, spleen, kidneys and pelvic viscera, to determine the presence, extent or absence of abdominal or pelvic adhesions, to study the pelvis, abdomen and retroperitoneal areas for presence of masses or tumor implants and to identify intrauterine or abdominal pregnancy.

It has long been known that accurate information can be obtained in this manner that is not available by other diagnostic means.

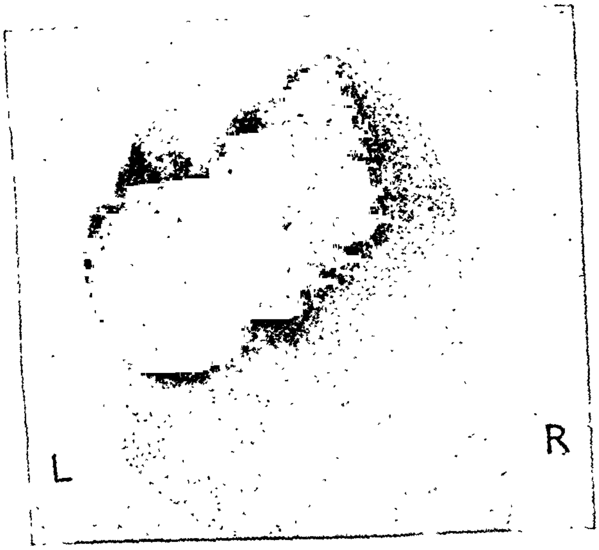

Fig. 1.—Roentgenogram showing enlarged right ovary and absence of left ovary. The uterus and bladder are adherent.

Stein has long been an ardent advocate of pneumoperitoneum in the study of pelvic structures. In his scientific presentations during the past 30 years, he has repeatedly written "that no test is so valuable as the transabdominal pneumoperitoneum." It is surprising that this procedure is not more widely used by the leading gynecologists and radiologists in the larger centers. Stein has mentioned that most of these patients are first seen by the gynecologist, and that the gynecologist does not feel the need for roentgenographic corroboration because, as a rule, he is satisfied with a diagnosis achieved by means of a history, speculum and bimanual examination.

The purpose of this paper is again to call the attention of the radiologists and gynecologists to the value of pneumoperitoneum. This can best be done by the presentation of case reports; these will follow a brief discussion of a few points on preparation of the patient and on the technic.

I feel that it is important to prepare the patient by explaining to her the procedure that she will go through and the sensations she will encounter during the examination. I have found little psychic trauma to patients. Most of them are cooperative and have not resisted repetition of the procedure when it was necessary.

Further, the use of pentobarbital (nembutal®) or secobarbital (seconal®), 1½ grains (0.10 Gm.), one hour before the procedure and the use of methadon hydrochloride, 10 mg., with atropine, 1/150 grain (0.40 mg.), 15 minutes before the start of the procedure adequately prepares the patient.

The simplicity of the apparatus with which pneumoperitoneum is induced and the technic of the process have been thoroughly described in previous papers by many authors. I claim no originality for the method used in pneumoperitoneum. The use of a blunt 18 or 20 gage spinal needle is the best means of penetrating the anterior abdominal wall. Most authors agree that the ideal site for penetrating the anterior abdominal wall is 1 inch (2.5 cm.) below and 1 inch to the left of the umbilicus. There are surprisingly few times when this space is not clear and easy to penetrate. For patients who have had numerous operations or in whom there is a history of peritonitis, with the possibility of adhesions to the anterior abdominal wall, I prefer to make the puncture with the patient lying down on her left side so that the needle can be put through the right lateral abdominal wall over the liver. In this way the possibility of damage to the bowel structure can be eliminated. The natural falling away from the chest and the abdominal wall of the heavier structures in the abdomen and the position of the bowel below it make it almost impossible to cause any damage. Once the needle is free in the abdominal cavity, 2,000 cc. of carbon dioxide is injected, and the films are taken immediately on withdrawal of the needle.

The first case to be reported illustrates the information made available by this method.

Case 1.—Mrs. I. M. C., aged 30, gave a history of an operation in 1944 with left salpingo-oophorectomy, appendectomy and uterine suspension. Since that time she had had trouble with her bladder. Her present complaint was pain in the right lower

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2. Case, J. T.: Review of 3 Years' Work and Articles on Pneumoperitoneum, Am. J. Roentgenol. **8**:714 (Dec.) 1921.
3. Stewart, W. H., and Stein, A.: Roentgen Ray Study of Abdominal Organs Following Oxygen Inflation of Peritoneal Cavity, Am. J. Roentgenol. **6**:533 (Nov.) 1919.
4. Stein, I. F., and Arens, R. A.: Pneumoperitoneum in Gynecology, Radiology **7**:326 (Oct.) 1926.
5. Lewis, B. O.: Simplified Apparatus for Induction of Pneumoperitoneum, Am. J. M. Sc. **211**:84 (Jan.) 1946.
6. Sante, L. R.: Present Status of Pneumoperitoneum as Aid in Radiological Diagnosis of Abdominal Lesions, Southwestern Med. **11**:529 (Dec.) 1927; Pneumoperitoneum as Aid in Pelvic Irradiation of Carcinoma of Cervix, Am. J. Roentgenol. **46**:689 (Nov.) 1941.
7. Faulkner, W. B., Jr.: Diaphragmatic Hernia and Eventration: Use of Pneumothorax in Differential Diagnosis, Am. J. Roentgenol. **45**:72 (Jan.) 1941.
8. Stein, I. F.: Eight Years' Experience with Roentgen Diagnosis in Gynecology; Pneumoperitoneum and Lipiodol in Pelvic Diagnosis, Am. J. Obst. & Gynec. **21**:671 (May) 1931; Why Pneumoperitoneum? Radiology **28**:391 (April) 1937; Gynecography, in Davis, C. H.: Gynecology and Obstetrics, Hagerstown, Md., W. F. Prior Company, Inc., 1934, vol. 3, chap. 3, p. 1; Gynecography in Diagnosis of Ovarian Disorders, in Soskin, S.: Progress in Clinical Endocrinology, New York, Grune & Stratton, Inc., 1950, pp. 374 and 382.
9. Peterson, R.: Value of Pneumoperitoneal Roentgenography in Obstetrics and Gynecology, J. A. M. A. **78**:397 (Feb. 11) 1922.
10. Martin, C. L.: Roentgenologic Studies of Liver and Spleen, Am. J. Roentgenol. **37**:633 (May) 1937.
11. Rubin, I. C.: Subphrenic Pneumoperitoneum, Produced by Intra-Uterine Insufflation of Oxygen as Test of Patency of Fallopian Tubes in Sterility and in Allied Gynecological Conditions, Am. J. Roentgenol. **8**:120 (March) 1921.
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13. Maxfield, J. R., Jr., and McIlwain, A. J.: Diagnostic Value of Pneumoperitoneum, Radiology **42**:346 (April) 1944.

quadrant, usually dull but sometimes sharp. She was not sure about aggravation of pain at menstrual periods, which were fairly regular and of heavy flow. She complained of premenstrual tension for three to four days before her period. Recently she had complained of a heavy feeling in the right lower quadrant, with dizziness. Pelvic examination revealed a small cervix, scarred, without evidence of a break in the mucosa. The uterus was twice its normal size, held up by suspension and deviated to the right with fibroids. Physical examination showed her to be otherwise normal.

Pneumoperitoneum revealed a large right ovary (fig. 1) and a uterus 1.5 times the normal size and bound tightly to the urinary bladder. The surgeon reexamined the patient and still insisted that a fibroid uterus accounted for shadows seen on pneumoperitoneum. At the operation a chocolate cyst of the right ovary was found, approximately 10 cm. in diameter. The uterus was slightly enlarged, with the fundus adherent to the peritoneum of the anterior abdominal wall; this condition was apparently the result of an old operation.

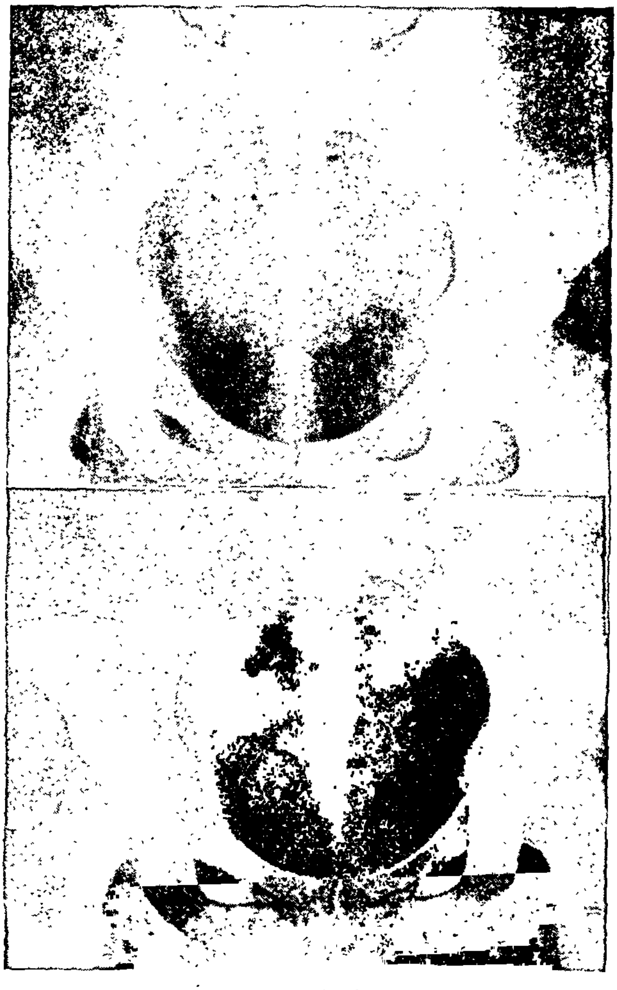

Fig. 2.—Films of patient's pelvis showing uterus depressing bladder. There are no demonstrable soft tissue masses in lateral portion of pelvis.

Case 2.—Mrs. J. S., aged 45, was treated in August 1948 for grade IV epidermoid carcinoma of the cervix, League of Nations stage III. The immediate result following radium and roentgen therapy was good, and the patient was symptom free until October 1949, when she began to have painless swelling of the left leg. Examination of the left leg showed it to be twice the size of the right one. No evidence of lymphadenopathy could be found in the inguinal region, and no venous thrombosis was present. Pelvic examination revealed a thick left broad ligament with extensive fibrosis, but no nodular mass could be found. Rectal examination revealed essentially the same findings. The anterior and posterior pelvic portals showed the evidence of previous radiation treatment usually seen in patients treated in this manner. The point in question was whether this was due to radiation fibrosis or due to an active tumor causing obstruction to the leg. Survey films of the chest, abdomen and pelvis and an intravenous pyelogram (figs. 2 and 3) revealed no demonstrable

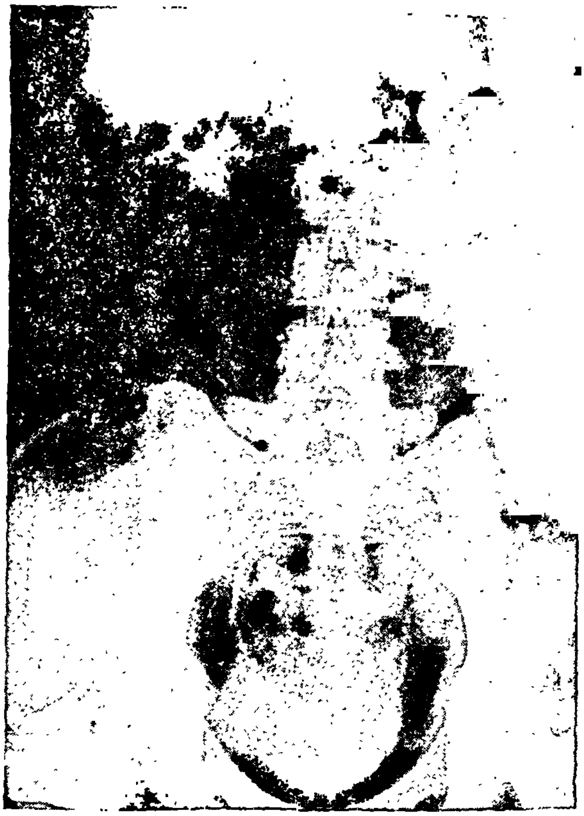

Fig. 3.—Intravenous pyelogram giving indication of normal kidney function. Ureters are normal, without displacement or dilatation. The uterus depresses dome of well filled bladder. There is no evidence of soft tissue masses in the lateral portion of the pelvis.

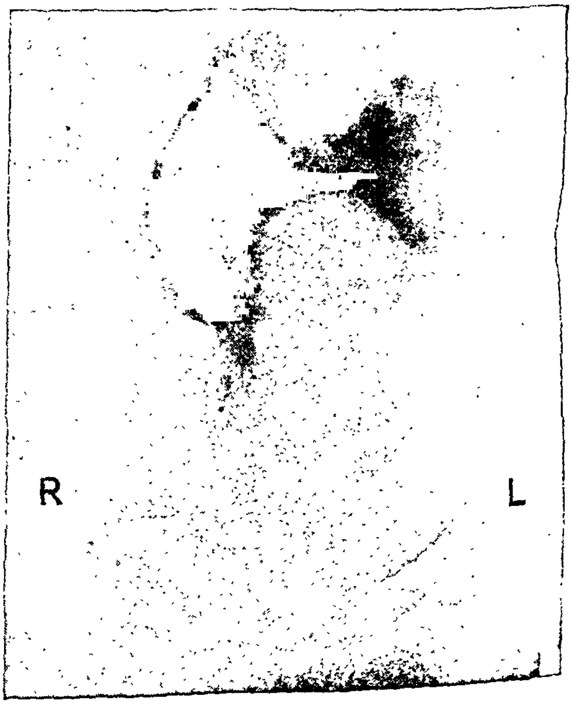

Fig. 4.—Pneumoperitoneum shows normal right side of pelvis. The uterus is slightly enlarged and drawn to the left. There is a nodular mass in the left side of the pelvis indicating carcinoma metastasis.

pathological changes in soft tissue or bony structures. Pneumoperitoneum (fig. 4) revealed the right side of the pelvis to be normal. The left side showed a nodular mass of tissue indicating a tumor growing in the lymph nodes and causing obstruction to the lymphatics of the left leg. As a result of this information, further intense roentgen therapy was given, and the swelling promptly disappeared.

These are only two cases from the series that I have been privileged to examine, but they indicate the importance of the information that this procedure will produce.

SUMMARY

In summary, I feel that pneumoperitoneum offers a method of determining the size, shape and position of pelvic structures so that accurate evaluation of clinical information can be made. This is an accurate method of determining intrauterine or ectopic pregnancy without interrupting the pregnancy. This is a method for evaluating progress and determining treatment of patients with malignant disease in the pelvic structures.

Pneumoperitoneum should be more widely used as a diagnostic aid in the leading centers of this country.

ABSTRACT OF DISCUSSION

DR. JOHN O'SULLIVAN, Melbourne, Australia: How much air does Dr. Maxfield inject?

DR. FRANK J. RIGOS, Tacoma, Wash.: What position does he use for the roentgen examination?

DR. J. MAURICE ROBINSON, San Francisco, Cal.: I should like to ask whether he uses carbon dioxide instead of air.

DR. J. R. MAXFIELD JR., Dallas, Texas: I apparently left out more than I should have on the subject of technic. These technics have been described in several papers. The amount of carbon dioxide (and that is the gas that should be used in all of these, because one can eliminate the possibility of danger by using carbon dioxide) is approximately 2,000 cc. This does not cause undue discomfort to the patient. A patient who has marked ascites, in which there has been the previous removal of fluid, will tolerate 4,000 or 5,000 cc. without difficulty. The positions that I use routinely for pelvic structure study are the right lateral decubitus and the left lateral decubitus, with the head down at a Trendelenburg position of 15 degrees. The patient is then turned to the prone position, with the table inclined to 45 degrees and the beam inclined downward through the pelvic strait, so that the patient's pelvis is up, the head is down and the beam goes through at an angle to outline pelvic structures. In this position the structures seem to have the gas around them for the best contrast. Dr. Irving Stein, in his numerous writings, has described the technic in which a knee-chest position is used. A special table has been made so that the patient can actually be in a knee-chest position in which the pneumogram of the pelvis can be taken. However, I feel that one should encourage the use of pneumoperitoneum in the general radiological laboratories. It can be done on the standard tables, and excellent films can be obtained without great difficulty to patient or radiologist. The paper has numerous bibliographical references that will describe the use of pneumoperitoneum in detail. The apparatus to induce it is quite simple and is also described in previous papers.

Infectious Mononucleosis.—There is no specific therapeutic agent for infectious mononucleosis. Sulfonamides and penicillin may benefit a complicating streptococcus throat infection. Convalescent infectious mononucleosis and scarlet fever sera have given dramatic results in some seriously ill patients. Human plasma and gamma globulin have occasionally appeared to be beneficial. Aureomycin and Chloromycetin seem effective in some cases when started early in the disease. Hepatitis is extremely common, and when severe should be treated exactly like cases of infectious hepatitis.—Robert E. Kaufman, M.D., Treatment of Infectious Mononucleosis, *American Practitioner,* April, 1951.

CLINICAL NOTES

METHEMOGLOBINEMIC CYANOSIS

REPORT OF AN EPIDEMIC DUE TO CORNING EXTRACT SUBSTITUTED FOR MAPLE SYRUP

Jay Tepperman, M.D.
Robert Marquardt, M.D.
George H. Reifenstein, M.D.
and
Eugene L. Lozner, M.D., Syracuse, N. Y.

Sudden onset of cyanosis is an alarming event that usually suggests a cardiovascular or pulmonary catastrophe. A rarer cause is acute toxic methemoglobinemia. We recently had an opportunity to study an "epidemic" of the latter condition involving at least seven patients. All had eaten wheatcakes and "maple syrup" at a diner. This report briefly summarizes the case histories and describes the series of events leading to discovery of the offending agent. A similar epidemic of methemoglobinemia due to accidental nitrite ingestion was reported by Greenberg, Birnkrant and Schiftner,[1] who reviewed the literature up to 1945. At that time, they called attention to the serious nature of the poisoning and mentioned the high fatality rate. At least 19 deaths due to sodium nitrite have been reported. Since Greenberg's article appeared, the therapeutic use of methylene blue for cyanosis has been established beyond doubt. Although five of our seven patients in the present series were not particularly ill and recovered spontaneously, the remaining two patients appeared moribund on hospital admission. In these two patients, methylene blue was employed intravenously and appeared to be lifesaving.

REPORT OF CASES

CASE 1.—C. C., a 37 year old male taxi driver, was admitted to the ward service of the Syracuse Memorial Hospital at 9:15 a. m. on May 15, 1950, because of severe pounding of the heart and increasing bluish discoloration of the skin of one hour's duration.

At 7:30 a. m. on this day, the patient had pancakes and syrup at a diner in Syracuse. He thought the butter tasted rancid. At 8:15 a. m. he became nauseated and vomited small amounts of food. Shortly thereafter, dizziness, palpitation and cyanosis developed. At 6:15 on the morning of admission, he had taken one tablet of a commercial headache preparation and for 48 hours before entry he had been taking acetylsalicylic acid. He also stated that in the course of his occupation he had to wear dark trousers because the dye from the seat covers of the taxi was apt to stain his trousers and his skin.

Physical examination on admission showed the patient to be conscious but markedly cyanotic and dyspneic. His blood pressure was 120/70, temperature 99.8 F., pulse rate 140 and respiration rate 22. Except for the cyanosis and a few rales over the left lower lung field, the entire examination was

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From the Departments of Medicine and Pharmacology, State University of New York, Medical Center at Syracuse, School of Medicine, and from the Department of Health, City of Syracuse.

Dr. Jaime Paris assisted in the clinical management of the first patient. Mr. Richard Wilson and Mr. Melvin Rossman, of the class of 1951, aided in collecting the samples of food which permitted the identification of the toxic substance. The following physicians permitted us to report their patients: Dr. S. Schwartzbart, case 2; Dr. S. Schwartzberg, case 3; Drs. W. Saile and J. G. F. Hiss, case 5.

[1] Greenberg, M.; Birnkrant, W. B., and Schiftner, J. J.: Outbreak of Sodium Nitrite Poisoning, Am. J. Pub. Health 35: 1217-1220 (Nov.) 1945.

noncontributory. His heart and lungs showed no abnormality on physical examination.

Laboratory Data.—On admission, the patient's hematocrit reading was 49 per cent, and his leukocyte count was 11,500, with 67 per cent polymorphonuclear cells, 1 per cent monocytes, 1 per cent eosinophils and 31 per cent lymphocytes. Results of urinalysis were normal. The nonprotein nitrogen concentration was 42 mg. per 100 cc. and the fasting blood sugar level was 110 mg. per 100 cc. On the day after admission his leukocyte count was 14,000 with 70 per cent polymorphonuclear cells.

Hospital Course.—On admission the patient was placed in an oxygen tent, but despite this his cyanosis increased. At 10:15 a. m. he became irrational; his blood presure fell to 70/50. He then fainted and had minor generalized convulsions. After he was placed in the Trendelenberg position, his rationality returned, and he complained of tingling of his hands. This process was reversed by raising his back, and then he would faint. Blood was drawn at this time, and it appeared grossly to be of dark chocolate color. Oxygen bubbled through it did not change its color, and a clinical diagnosis of methemoglobinemia was made. At this time, 100 mg. of methylene blue was administered intravenously. Immediately before administration of the methylene blue, blood was drawn for a methemoglobin determination according to the method of Evelyn and Malloy.[2] Methemoglobin was estimated to be present in the amount of 75 per cent of the total pigment. Twenty minutes after the administration of the methylene blue the tingling had disappeared from the extremities and the man became rational. Fifty minutes after the administration of methylene blue the methemoglobin concentration was 60 per cent. Cyanosis was definitely less. The blood pressure was 100/70. Three hours after the administration of methylene blue, cyanosis could not be detected clinically but the methemoglobin concentration was reported as 18 per cent. Another 100 mg. of methylene blue was injected intravenously at this time, and thereafter all signs and symptoms improved. He was discharged from the hospital on May 19. An electrocardiogram taken when the patient's methemoglobin concentration was 75 per cent showed sinus tachycardia with slight RS-T segment depression in leads V_4, V_5 and V_6. Two days later the electrocardiogram was entirely within normal limits.

The etiological factors considered in this case on the day of admission were acetanilid, aniline dye and sodium nitrite or nitrate adulteration of the food. The overwhelming nature of the methemoglobinemia and the rapidity of its onset following the morning meal suggested that the offending toxin was most likely a nitrite and that the patient had ingested it with his breakfast. However, no steps were taken to identify the toxic agent until after the admission of the second patient.

CASE 2.—H. R., a 54 year old telephone lineman, was admitted to the Crouse-Irving Hospital on May 16, 1950, at 11:00 a. m., complaining of a faint feeling and dyspnea of three hours' duration. This man had been in excellent health until the morning of admission, when, after a breakfast of pancakes and syrup at 8:00 a. m. at the same diner as the first patient, he suddenly became nauseated and felt "numb" and had generalized tingling. He then became weak and dyspneic, staggered and then fainted. A physician was called who found him extremely cyanotic, dyspneic and disoriented and referred him to the hospital.

Physical examination showed the patient to be comatose with marked generalized cyanosis. His temperature was 99.8 F., pulse rate 150, respiration rate 40 and blood pressure 90/50. Aside from a small bruise on the vertex of his head, the remainder of the physical examination was entirely noncontributory.

Laboratory Data.—On admission his hemoglobin was 13 Gm., erythrocyte count 4,000,000, leukocyte count 50,000 with 90 per cent polymorphonuclear cells and 10 per cent lymphocytes. Nonprotein nitrogen concentration was 44 mg. per 100 cc., fasting blood sugar 254 mg. per 100 cc. (intravenous feeding was in progress at the time). Urinalysis revealed no abnormality. A lumbar puncture showed the spinal fluid to be clear with no cells and with a protein content of 27 mg. per 100 cc. The dynamics were normal.

Hospital Course.—The blood of this patient was also noted to be chocolate brown and did not change when it was equilibrated with air. A clinical diagnosis of methemoglobinemia was made, and he was given 100 mg. of methylene blue intravenously. Blood drawn before the admission of methylene blue showed 78 per cent concentration of methemoglobin. Twenty minutes after the administration of methylene blue the patient was able to speak coherently and at this time gave the above history. In 30 minutes the cyanosis had markedly lessened. His blood pressure rose to 120/80, and two hours after the first injection of methylene blue his methemoglobin was 18 per cent. He was given another 100 mg. of methylene blue and he continued to improve. He was discharged on May 18. This case was complicated at first by the suggestion that the patient's condition might have been due to a head injury he had sustained in the course of his work on the day before admission.

After the discovery that the only etiological factor in common between the first and the second patient was the wheatcakes, butter and syrup which each had eaten at the same restaurant, samples of these materials were collected and investigated by the department of pharmacology. Three cubic centimeters of an aqueous extract of the wheatcakes, syrup and butter was fed to each of three adult male rats by stomach tube. All the animals died in about 35 minutes with quantitative conversion of their hemoglobin to methemoglobin. A qualitative test of this extract was strongly positive for nitrite ion. The department of health was then notified, and samples of all materials which might possibly have been involved in the meal were sent to the department of pharmacology for acute toxicity studies. The pancake batter and the butter were nontoxic, but what was thought to be maple syrup produced methemoglobinemia in rats. It was then learned that the diner prepared its maple syrup by adding maple flavoring extract to sugar syrup. However, when each of these ingredients was tested separately in animals, neither produced methemoglobinemia. On further questioning of the restaurant proprietor, it became apparent that a gallon jug of corning extract, used in corning beef and freshening hamburgers, had been substituted inadvertently for a gallon jug of maple syrup. The corning extract contained large amounts of sodium nitrite and some sugar and appeared grossly like the maple syrup and bore a remarkable resemblance to it in taste.[3]

All hospitals in Syracuse were then notified, and physicians were contacted with regard to any patients with unexplained cyanosis who had appeared within the previous week. In retrospect, the following five patients were given diagnoses of probable methemoglobinemia. None of them had laboratory confirmation of this diagnosis.

CASE 3.—L. B., a 52 year old laborer, had pancakes and syrup on May 11, 1950, at 8:00 a. m. at the diner mentioned above. About one hour later, he appeared dizzy and faint and his fellow workers noticed a bluish tint to his skin and lips. He noticed no dyspnea. He was unable to see a physician that day but left his job during the morning, went home, drank some milk and went to sleep. At 2:30 p. m. he awoke feeling better and walked about. He felt slightly weak for about a week but did not return to work for 12 days. Eleven days after this incident, he received a physical examination which revealed no abnormality.

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[2] Evelyn, K. A., and Malloy, H. T.: Micro-Determination of Oxyhemoglobin, Methemoglobin and Sulfhemoglobin in a Single Sample of Blood, J. Biol. Chem. **126**: 655-662 (Dec.) 1938.

[3] This corning extract is known as Afral and contains 8 per cent nitrites, 4 per cent nitrates and sucrose.

Case 4.—M. S., a 38 year old male newspaper employee, was admitted to St. Joseph's Hospital in Syracuse at 4:00 a. m. on May 15, 1950. At 2:00 a. m. on the same morning he had pancakes and syrup at the same diner. He noticed that the syrup tasted salty. One hour later he began to feel weak and his fellow employees noticed his bluish color. At the hospital he was placed in an oxygen tent, with slight improvement, but no other symptoms developed nor were there any positive physical findings. By noon his color was normal and he felt completely well except for some headache. He was discharged at 2:00 p. m.

Case 5.—R. B., a 46 year old white male cabinetmaker, on May 13, 1950, at 9:00 a. m. had pancakes and syrup at the previously mentioned diner. He noticed that the syrup tasted salty. At 10:00 a. m. he began to notice pain in his chest over the region of the heart and epigastric and arm pain, accompanied with palpitation and dyspnea. He was seen by a physician at 1:00 p. m., who noticed extreme cyanosis, dyspnea, auricular fibrillation and a blood pressure of 100/60, although it had previously been 130/80. The patient improved gradually; auricular fibrillation stopped in 24 to 36 hours; cyanosis cleared in 3 to 4 days, and the blood pressure returned to its former level. On May 16, he had some abdominal pain and diarrhea which cleared within 24 hours. An electrocardiogram taken eight days after the acute episode, was normal. The provisional diagnosis on May 13 was coronary occlusion, but the diagnosis in retrospect was methemoglobinemia with coronary insufficiency due to anoxia.

Case 6.—H. H., a 35 year old male newspaper employee, had pancakes and syrup on May 13, 1950, at 7:15 p. m., at the above diner. One hour later he felt nauseated and vomited a small amount of food. He then noticed that his nails were extremely dark. Because of his unsteadiness on his feet, he took a cab home. On arrival home, his wife noticed that he was markedly cyanotic and dyspneic. He went to bed and at 4:00 a. m. felt distinctly better, and his cyanosis had lessened. At 9:00 a. m. he was completely well. He did not see a physician professionally, but reported the episode to a friend who was a physician.

Case 7.—P. T., a 27 year old newspaper employee, had pancakes and syrup with the preceding patient (case 6). He noticed that the pancakes and syrup tasted peculiar and did not finish them. He took two bromo-seltzer® tablets and immediately felt sick but did *not* vomit. On returning to work, his colleagues noticed that he was extremely cyanotic. He noticed only a peculiar taste in his mouth and continued to work for the next 2½ hours; then he went home. The following morning he felt well but retained a peculiar taste in his mouth. He did not consult a physician but reported this incident to the patient mentioned in case 6, who included it in his report to his physician friend.

COMMENT

The clinical diagnosis of methemoglobinemia in case 1 was suggested by (1) the history of sudden onset of cyanosis after eating, (2) the presence of intense cyanosis without gross evidence of cardiac or pulmonary disease, (3) the symptoms and signs of severe anoxia while in an oxygen atmosphere and (4) the peculiar chocolate brown appearance of the blood, with no change in color after oxygen had been bubbled through the sample. In retrospect, typical nitrite hypotensive reactions were observed in cases 1 and 2. The effects of anoxia on the coronary circulation were evidenced in electrocardiographic changes in case 1 and the symptoms of coronary insufficiency in case 5. Presumably, the sickest patients had the greatest nitrite intake; indeed, the first patient even finished the syrup remaining after the wheatcakes had been eaten.

The physiological and pharmacologic mechanisms involved in the appearance and disappearance of methemoglobinemia have been thoroughly reviewed by Finch,[4] whose article presents an excellent discussion. Our patients all had secondary methemoglobinemia, due to accidental nitrite ingestion. Once absorbed, the nitrites oxidized hemoglobin to methemoglobin at a rate faster than the reverse reaction could be carried out by the hypothetical normal cellular mechanisms. There was no evidence that any of these patients suffered a congenital lack of these normal cellular mechanisms (primary methemoglobinemia), and neither ascorbic acid nor glutathione, useful in this congenital type of deficiency[5] was given to these patients. The treatment of secondary methemoglobinemia is based on the observation that methylene blue enormously potentiates the action of the normal red blood cell enzymatic system that reduces formed methemoglobin at a rapid rate.[6] This rate is faster than that at which hemoglobin can be oxidized by most of the known methemoglobin formers.

SUMMARY

As a result of the clinical diagnosis of methemoglobinemia in two patients, the responsible toxin was identified and traced to "maple syrup" served in a public restaurant. Corning extract containing nitrite and sucrose had been inadvertently substituted for the syrup. In retrospect, the diagnosis of methemoglobinemia was made for five additional patients. Methylene blue administered intravenously to the two sickest patients produced dramatic, apparently life saving results.

It is suggested that in view of this episode, suitable steps be taken by public health authorities to identify properly such corning extracts and to call attention to their toxic effects if consumed in quantity.

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[4] Finch, C. A.: Methemoglobinemia and Sulfhemoglobinemia, New England J. Med. **239**: 470-478 (Sept. 23) 1948.

[5] Eder, H. A.; Finch, C., and McKee, R. W.: Congenital Methemoglobinemia: A Clinical and Biochemical Study of a Case, J. Clin. Investigation **28**: 265-272 (March) 1949.

[6] Bodansky, O.: Mechanism of Action of Methylene Blue in Treatment of Methemoglobinemia, Correspondence, J. A. M. A. **142**: 923 (March 25) 1950. Wendel, W. B.: Oxidations by Erythrocytes and Catalytic Influence of Methylene Blue: II. Methemoglobin and Effect of Cyanide, J. Biol. Chem. **102**: 385-401 (Oct.) 1933.

Preparing Children for Pain.—Virtually all children have a great deal of anxiety about being in hospitals, particularly about the so-called minor operations so common in childhood. Although hospital and operative procedures leave their greatest scars in neurotic children, they also leave some psychic scars in normal children. We have noticed that these are more traumatic to the child when he is not told the truth about the procedure and when it is not discussed with him before it is done. We would like to condemn the common practice of telling a child, "This won't hurt," and then sticking him with a needle, putting an ether mask over his face, etc. It is less traumatic to tell a child that it is going to hurt, but you will try to get it over with quickly and with no more hurting than absolutely necessary, and that he will feel better afterward.—F. G. Ebaugh, M.D., and J. J. O'Hearne, M.D., Psychiatry, in Medicine of the Year: Philadelphia, J. B. Lippincott Company, 1951, p. 71.

HEMOCHROMATOSIS

REPORT OF AN UNUSUAL CASE

Joseph C. Doane, M. D.
Charles H. Kravitz, M.D.
and
Gladys Rosenstein, M.D., Philadelphia

This case of hemochromatosis is reported not only because of the rarity of this condition but also because of some unusual features presented by this patient.

REPORT OF CASE

F. B., a 57 year old white man, was admitted to the Jewish Hospital on April 12, 1949 with a chief complaint of frequency of urination of five weeks' duration. There was no dysuria or hematuria. During the same period the patient experienced a weight loss of approximately 40 pounds (18 Kg.). During the four weeks prior to admission, there was a change of bowel habit from extreme irregularity to persistent constipation necessitating the use of laxatives. In the last two weeks, the patient noted swelling of both feet and legs, extending to the knees. He also noted some postprandial distress, consisting mainly of pain across the upper abdomen. There was no associated nausea or vomiting, polyphagia or polydypsia. There was a history of passing dark brown urine one year ago. The patient had had typhoid at the age of 14 but had not consulted a physician since that time. The family history was noncontributory.

The physical examination revealed a small, thin, emaciated white man, ambulatory and apparently not in acute pain. The skin color was a peculiar slate-gray-bronze, especially over the hands, feet and face; here the skin was dry and desquamating. The scleras were mildly icteric.

The chest was clear. The left border of the heart was at the anterior axillary line. The cardiac rate was 60 per minute, and the blood pressure was 140/70. The rhythm was regular, but a blowing diastolic murmur was heard at the second right costal cartilage.

The abdominal wall presented numerous dilated veins. The abdomen was distended with flank dulness, and a fluid wave was present. The liver was palpable to 10 cm. below the costal margin and was firm and nontender, with a sharp edge. The spleen was not palpable. Ankle edema was extreme.

The laboratory studies on admission elicited the following data: fasting blood sugar, 252 mg. per 100 cc.; blood urea nitrogen, 11 mg. per 100 cc.; icterus index, 15 units; total proteins, 8.5 Gm. per 100 cc., blood chlorides, 510 mg. per 100 cc.; prothrombin time, 15 seconds (50 per cent of normal activity). The urine contained sugar (3 +), no diacetic acid, a slight trace of albumin and acetone (3 +). The blood count showed 12.2 Gm. of hemoglobin per 100 cc., 4,870,000 red cells and 6,400 white cells, of which 45 per cent were polymorphonuclear cells and 55 per cent lymphocytes.

The patient was placed on a diabetic regimen with insulin. There was an extreme lability of the blood sugar, and on several occasions signs of severe hypoglycemia were noted. At one time it was necessary to withdraw insulin completely.

The venous pressure was 13 cm. of water, with a circulation time of 30 seconds from arm to tongue (tested with magnesium sulfate and calcium gluconate) and 27 seconds from arm to lung (tested with ether).

On April 19 a few fine crackles were noted at the base of the right lung, and a chest x-ray showed some evidence of congestive failure.

An electrocardiogram taken at this time was interpreted as showing evidence of myocardial disease but of no recent or remote accident.

The liver function tests showed normal sulfobromophthalein (bromsulphalein®) sodium excretion, thymol turbidity and cephalin flocculation readings. The serum amylase was normal. The blood cholesterol concentration was 181 mg. per 100 cc. of which 40 per cent was cholesterol esters. The prothrombin time continued to range between 35 per cent and 60 per cent of normal values. Two van den Bergh tests showed values of 0.9 mg. and 1 mg. of bilirubin per 100 cc., respectively. Both the acid and the alkaline phosphatase values were normal. The serologic reactions were negative. A gastrointestinal x-ray series revealed only gastritris.

A repeat electrocardiogram on May 5 was interpreted as showing acute damage to the anterior wall of the left ventricle, which had occurred since April 19. A subsequent tracing, on June 2, 1949, was interpreted as showing the typical sequential changes of a recent anterior wall infarction.

A skin biopsy was performed, and the pigmentation was found to be characteristic of hemochromatosis. The urine sediment gave a positive reaction for iron.

The patient's course ran progressively downhill. Under strict diabetic management the skin color became lighter. Terminally, auricular fibrillation developed. Death presumably resulted from heart failure.

Autopsy Observations.—Necropsy was limited to inspection and a microscopic examination of the liver and its adjoining organs.

The liver was hard, extremely nodular and cirrhotic throughout. The surfaces were reddish tan. In the microscopic specimen tan-colored nodules could be seen, surrounded by rings of congestion.

The spleen was only moderately enlarged but was very firm.

The pancreas showed marked fatty infiltration. The remaining very small amount of pancreatic tissue was reddish brown and was congested.

The left kidney was elongated and had a smooth pale surface with congested vessels. The right kidney could not be found.

The intestines were apparently normal, except for a bluish discoloration of the transverse colon.

Histologic Diagnosis.—The histologic diagnoses were hemochromatosis, and severe cirrhosis with extensive deposit of hemosiderin in the liver cells and fibrous tissue.

The causes of death were (1) hemochromatosis, (2) severe hepatic cirrhosis with enormous deposition of iron pigment and (3) atrophy of the pancreas and extensive infiltration with considerable deposit of iron pigment.

COMMENT

This case of hemochromatosis, still a rare disease, presents unusual features. The skin pigmentation was present for many years, but the patient was asymptomatic and quite unaware of any color change. However, once the symptoms of this condition became evident, there was a rapid downhill course. The therapy was most difficult because diametrically opposite indications presented themselves. The liver involvement necessitated use of a high carbohydrate diet, whereas the diabetes demanded some carbohydrate restriction, particularly since stabilization of the blood sugar was an ever increasing problem. During the last several weeks of the patient's illness, he was most apathetic. It was difficult to decide whether the dulled sensorium was due to hepatic toxicity or to cardiac failure. The added myocardial infarction made the picture even more complex. The pathologic changes in the liver no doubt caused the decrease in the prothrombin activity.

SUMMARY

An additional case of hemochromatosis with some unusual features is added to the literature.

A plea is made for an increased awareness of this disease, the triad of symptoms being (1) pigmentation of the skin, (2) hepatic cirrhosis and (3) diabetes mellitus.

York and Tabor Rd.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized the publication of the following report by the Committee on Pesticides.

R. T. STORMONT, M.D., *Secretary.*

MORE FACTUAL DEATH CERTIFICATES

The Committee has experienced difficulty in preparing useful tabulations on deaths from various poisons because the data furnished by physicians on death certificates have been incomplete. In the past, this was understandable since container labels frequently carried no ingredient statements and the agent responsible for the death often remained unknown. However, with the passage of the Federal Insecticide, Fungicide and Rodenticide Act, economic poisons in interstate commerce are required to carry ingredient statements.

When the name of the active ingredient and the proprietary or trade name of the product suspected of having caused death is not entered on the victim's death certificate, valuable information is omitted. The listing of both the active ingredient and trade name of the suspected product is necessary, since so-called inert ingredients in many preparations may be responsible for death. Common offenders in this category are the solvents frequently used to carry the pesticidal agent. It is equally important that deaths from materials commonly found in the home as well as those associated with agricultural and industrial pursuits be accurately and consistently reported. Only in this way will a balanced picture of relative hazard be obtained.

The preparation of more factual death certificates will facilitate accurate tabulations on the causes of accidental deaths due to poisoning and will ultimately help reduce the loss of lives resulting from the careless use of highly toxic products.

NEW GENERIC AND BRAND NAMES RECOGNIZED BY THE COUNCIL

The Council collaborates with manufacturers in the selection of generic and brand names for marketed drug preparations presented for acceptance and also for new products still under development or clinical trial. The last report on such names appeared in THE JOURNAL, March 3, 1951, p. 644.

The following abstract lists the generic designation, the chemical name, where necessary for information, and the recognized brand name or names under which the preparations are available. In general, a generic name should bear recognizable relation to the chemical name and conform as closely as consistent with brevity and practicality to existing systems of scientific nomenclature. The chief requirement for a brand name is that it should not be therapeutically suggestive.

Choline Gluconate for the gluconate salt of choline, 2-(hydroxyethyl)trimethylammonium D-gluconate

Chlorcyclizine Hydrochloride for 1-*p*-chlorobenzhydryl-4-methylpiperazine hydrochloride: Di-Paralene Hydrochloride (Abbott Laboratories)

Dimethyl-Tubocurarine Chloride: Mecostrin Chloride (E. R. Squibb & Sons)

Ergotamine with Caffeine for ergotamine tartrate and caffeine combined: Cafergot (Sandoz Pharmaceuticals)

Khellin (Instead of Visammin) for 2-methyl-5,8-dimethoxyfuranochromone

Khellol Glucoside for 2-methylol-5-methoxyfuranochromone glucoside

Methyl Hexane Amine for 1,3-dimethylamylamine: Forthane (Eli Lilly & Company)

Phenacemide for phenacetylcarbamide: Phenurone (Abbott Laboratories)

Probenecid for *p*-(di-*n*-propylsulfamyl)benzoic acid: Benemid (Sharp & Dohme, Inc.)

Salicylazosulfapyridine for 4-(pyridyl-2-amidosulfonyl)-3'-carboxy-4'-hydroxyazobenzene

Tetraethylammonium Chloride: Etamon Chloride (Parke, Davis & Company)

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Aminophylline-U.S.P. (See New and Nonofficial Remedies 1950, p. 278).

Tablets Aminophylline: 0.1 gm. and 0.2 gm. Professional Drug Service, Inc., St. Louis.

Gamma Benzene Hexachloride (See THE JOURNAL, Oct. 14, 1950, p. 548).

Ointment Kwell 1%: 56.7 gm. tubes and 454 gm. jars. An ointment containing 10 mg. of gamma benzene hexachloride in each gram. Commercial Solvents Corporation, New York.

Diethylstilbestrol-U.S.P. (See New and Nonofficial Remedies 1950, p. 331).

Tablets Diethylstilbestrol: 0.1 mg., 0.25 mg., 0.5 mg., 1.0 mg., and 5.0 mg. Barlow-Maney Laboratories, Inc., Cedar Rapids, Ia.

Diphtheria Toxoid, Alum Precipitated-U.S.P. (See New and Nonofficial Remedies 1950, p. 438).

Diphtheria Toxoid (Alum Precipitated): 5 cc. vials (five immunizations). Preserved with thimerosal 1: 10,000. Pitman-Moore Company, Division of Allied Laboratories, Inc., Indianapolis.

Diphtheria Toxoid, Alum Precipitated: 1 cc. (0.5 cc. dose form), 5 cc. (0.5 cc. dose form), and 10 cc. (1 cc. dose form) vials. One immunization, five immunizations, and five immunizations, respectively. Preserved with thimerosal 1: 10,000. E. R. Squibb & Sons, New York.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, *Secretary.*

ACE ELASTIC HOSIERY ACCEPTED

Manufacturer: Becton, Dickinson & Co., Rutherford, N. J.

Ace Elastic Hosiery is designed to give support to varicose and phlebitic veins and to control the swelling of the leg in various circulatory and inflammatory conditions. It is intended to form a smooth sheath over the leg and is described as "full-footed," meaning that the patient does not have to wear a second pair of hose over the elastic stockings. They are knitted of nylon and rubber with cuffs of nylon and mercerized cotton.

Evidence from sources acceptable to the Council indicated that these hose were of good quality, that they were as durable as could be expected in view of the sheerness which many patients desire, and that the results of wearing them were satisfactory provided precautions were taken to secure a proper fit. The Council on Physical Medicine and Rehabilitation voted to include the Ace Elastic Hosiery in its list of accepted devices.

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THE VALUE OF TOTAL POPULATION X-RAY SURVEYS

Total population x-ray surveys of the chest have been extensively prosecuted in this country in the campaign against pulmonary tuberculosis. The problems of quality of roentgen reproduction, of reliability of roentgen interpretation, of thoroughness of follow-up, and of reduction of local incidence of tuberculosis have been studied to some extent and has been commented on by various groups to a considerable extent. However, no really comprehensive review of a long term, total population study has yet been made in this country. A recent follow-up report on a total population survey of the island of Gotland, made in 1943 and analyzed in succeeding years by Lonnerblad,[1] is of interest. Gotland was almost an ideal location for a successful total population survey. The island is comparatively remote and has a negligible immigration factor. It is about seven hours by sea from the mainland of Sweden.

In this mass photofluorographic survey, 56,964 persons were examined, which is equivalent to 99% of the population over the age of 1 year. This is a remarkable achievement, as most surveys fail to exceed 80% of the population over the age of 16. The customary small percentage of adults with potentially significant pulmonary shadows and the even smaller percentage of persons with open pulmonary lesions were discovered. The long-term value of the survey, namely, its apparent influence on the prevention of tuberculosis (as a result of the detection and isolation of active cases), was studied by observation of the tuberculosis mortality in Gotland for the ensuing seven years and comparison with the mortality for Sweden as a whole (which had not yet undertaken extensive total population surveys). The mortality rate for tuberculosis per 100 inhabitants in Gotland in 1946 was 0.54 and for Sweden as a whole 0.51. For 1947, the respective figures were 0.49 and 0.48, and for 1948, 0.70 and 0.48. Therefore, there was no appreciable reduction in mortality and apparently little improvement in prevention of tuberculosis. Even three years after completion of the survey, it was noted that more than half of the newly discovered cases of open pulmonary tuberculosis had already passed the moderate stage.

Lonnerblad points out that it is not feasible at the present time to isolate effectively all persons with intermittently open pulmonary tuberculosis. Further, in some persons with lesions that are radiographically improving, rapid progression or reactivation even of apparently stable foci may suddenly develop. These persons, clinically well for a period of years, have ample time to infect a considerable number of other persons before being detected. Two or three such cases in a populous community will entirely neutralize the value of a periodic mass survey.

Even in a homogeneous, relatively isolated area like Gotland, it proved very difficult to trace sources of infection or to trace and examine a majority of contacts of open cases. However, even if such were possible, the small number of coexisting "carriers" of tubercle bacilli (with minimal or negligible pulmonary roentgen shadows) tend to vitiate the program. Some careful persons with open tuberculosis may not act as carriers, but others, especially those in whom there develops undetected, rapidly progressive tuberculosis, may in a short time be a source of infection to large numbers of persons. A man may have been assured that his last photofluorogram was normal, and it does not occur to him that he may be a victim of open disease.

The author suggests that the promotion of some means of general prophylaxis of the total population (such as by BCG vaccination), as well as the promotion of improved general economic conditions, is essential before total population surveys can produce the desired results. At the same time, it is observed that mass surveys of selected groups, such as persons segregated in institutions or otherwise thrown in close contact, have an obvious constructive place in preventive medicine, provided it is borne in mind that negative results merely exclude evidence of disease at that particular moment.

SURGICAL RELIEF OF PULMONIC STENOSIS IN TETRALOGY OF FALLOT

Early attempts at surgical relief of stenotic valvular lesions of the pulmonary artery and the heart were disappointing and led to justified pessimism as to the feasibility of surgical therapy. Recent advances in intrathoracic surgery, in the art of anesthesia, in preoperative and postoperative treatment, in blood transfusion and employment of oxygen, all served to revive interest in the surgical attack on congenital anomalies of the heart. The almost hopeless prognosis of the morbus caeruleus made it apparent that the risk of operation was probably less than that of leaving the condition untreated.

Blalock and Taussig [1] in 1945 introduced an operative procedure for the relief of pulmonic stenosis. The operation consisted of anastomosing one of the systemic arteries, preferably the subclavian, to one of the pulmonary arteries. This shunting operation created an artificial ductus arteriosus and increased the flow of oxygenated blood through the lungs, thereby reducing cyanosis. Blalock was able to report in 1948 on 610 patients subjected to the operation for the relief of pulmonic stenosis, with a mortality rate of 17.7 per cent. The results were gratifying, particularly with regard to the lessening of the patient's incapacity.

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[1] Lonnerblad, L.: The Value of a Total Population Roentgen Chest Survey in the Campaign Against Tuberculosis, Acta radiol. **34**: 501 (Dec.) 1950.

[1] Blalock, A., and Taussig, H. B.: The Surgical Treatment of Malformations of the Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia, J. A. M. A. **128**: 189 (May 19) 1945.

The important lesion in the tetralogy of Fallot is the pulmonary stenosis. Two types of stenosis exist: valvular and infundibular, in which there is a formation of a ridge of tissue just below the valves. This ridge or septum encroaches on the lumen of the artery and contributes to the formation of a sort of fifth cardiac chamber. In either instance the pulmonary artery may be normal in size, hypoplastic or dilated. Either lesion interferes with the free flow of blood into the pulmonary circulation. Potts and co-workers [2] introduced a modification of the Blalock operation, anastomosing the pulmonary artery and the aorta. The advantages of this procedure are to be seen in cases in which the subclavian artery is too small or too short. The disadvantage of the Blalock procedure is the creation of a ductus arteriosus with possible later development of subacute bacterial endocarditis. There is also some question as to whether the anastomosis will keep pace with the growth of the patient.

Accurate diagnosis of the existing congenital anomaly can be achieved in most instances with the aid of arteriography and intracardiac catheterization. Brock [3] attempted direct inspection of the valves of the pulmonary artery in the course of the operation by introducing a cardioscope into the left pulmonary artery. The maneuver, however, was not always feasible and was frequently too hazardous. On the other hand, palpation of the exposed pulmonary artery and the right ventricle, Brock points out, reveals in a case of valvular pulmonary stenosis a well localized thrill. The thrill can be felt to be localized within the central portion of the lumen. In subvalvular or infundibular stenosis, no such characteristically localized thrill is felt in the first part of the pulmonary artery. Brock has reintroduced Doyen's unsuccessful attempt at a direct attack on the stenotic tissue. In the Brock procedure a valvulotome is passed through the wall of the right ventricle upward into the pulmonary artery. His first report dealt with three patients: one died; embolism of the lower extremity developed in one and hemiplegia in the third. These vascular complications were probably due to the fall in the blood pressure in the presence of polycythemia. Relief of infundibular stenosis is a far more complicated procedure, since it involves resection of a portion of the actual wall of the active ventricular muscle and not a simple division of a narrowed valve at the exit of the ventricle. Brock [4] accomplished this with a special instrument, a type of rongeur, which is introduced into the right ventricle and is passed upward in the direction of the pulmonary artery. The stenotic tissue is bitten off, the instrument is removed and the opening is further dilated with a special instrument. Blalock [5] reported a series of 19 cases of Brock valvulotomy for pure pulmonary stenosis with excellent results.

Downing and his associates [6] performed the Brock procedure in eight cases of tetralogy of Fallot. In six of these the improvement in exercise tolerance has been striking. These authors consider Brock's procedure the operation of choice in cases of pulmonary stenosis. There are, however, a number of questions that have not so far been answered, pertaining to (1) the incidence and effect of pulmonary regurgitation in cases in which the stenosed valve is divided, (2) the possibility of later development of subacute bacterial endocarditis and (3) the possibility that the valves might again fuse at some time or that the outflow tract might again become obstructed in cases in which infundibular stenosis has been corrected.

The results thus far achieved by both the indirect and the direct attack on the congenital anomaly known as the tetralogy of Fallot justifies the conclusion that an enormous advance has been made in the treatment of the hitherto hopeless case of the blue baby. The methods evolved will probably receive further refinement and will find application in acquired valvular disease of the adult as well.

MICROBIAL METABOLITES AND PLANT WELFARE

The dramatic advances of the past 10 years in the medical use of antibiotics have overshadowed the potential role of those substances in other fields. The use of antibiotics with antifungal properties for the control of plant diseases is of particular interest at a time when conservation of food supply is a matter of world-wide importance. Two recent reports are of considerable theoretical interest in that they suggest means by which the value of antibiotics in agriculture and horticulture can be further explored.

Henry [1] and his associates recently reported on the control of seed-borne fungus disease in cereals with acidione, an antibiotic produced by Streptomyces griseus. Wheat, barley, and oat seeds infested with covered smut were treated with acidione in a concentration of 10 parts per million in water. Treatment resulted in a reduced incidence of disease in all cases. Best results were obtained with oat smut, a major disease, and one of the covered smuts most difficult to control successfully by seed treatment. Acidione proved to be as effective as mercurials and formaldehyde and appeared to have no serious toxic action on the seed.

Brian, Wright, Stubbs, and Way [2] have reported that resistance to fungal parasites may be conferred on plants by antibiotic substances taken in through the root system and translocated to the leaves. For their studies, they used a fungistatic antibiotic, griseofulvin, which is produced by a common soil organism and which is relatively nontoxic to higher plants. They found that, if lettuce or oat seedlings were grown in nutrient solutions containing griseofulvin, the antibiotic could, after a period of time, be demonstrated in the leaves or in guttation-drops. Furthermore, when disease-causing fungus spores were sprayed onto lettuce or tomato plants that had been growing in griseofulvin-containing solutions for several days, the disease developed much more slowly than in control plants. More crucial experiments to prove whether griseofulvin could be produced by microbiologic synthesis in the soil and then pass into plants were inconclusive. The demonstration of such an effect would serve to indicate that the rhizosphere, or zone of increased microbial activity in the soil adjacent in plant roots, may make an important contribution to the welfare of the plant.

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[2] Potts, W. J.; Smith, S., and Gibson, S.: Anastomosis of the Aorta to a Pulmonary Artery, J. A. M. A. **132**: 627 (Nov. 16) 1946.

[3] Brock, R. C.: Pulmonary Valvulotomy for Relief of Congenital Pulmonary Stenosis: Report of Three Cases, Brit. M. J. **1**: 1121 (June 12) 1948.

[4] Brock, R. C.: The Surgery of Pulmonary Stenosis, Brit. M. J. **2**: 399 (Aug. 20) 1949.

[5] Blalock, in Downing, Bailey and Glover.[6]

[6] Downing, D. F.; Bailey, C. P., and Glover, R. P.: Brock Procedure for the Relief of Pulmonary Stenosis in the Tetralogy of Fallot, Pediatrics **7**: 230 (Feb.) 1951.

[1] Henry, A. W.; Peterson, E. A.; Millar, R. L., and Horricks, J. S.: Control of Covered Smut of Oats by Seed Treatment with an Antibiotic, Science **113**: 390 (April 6) 1951.

[2] Brian, P. W.; Wright, J. M.; Stubbs, J., and Way, A. M.: Uptake of Antibiotic Metabolites of Soil Micro-Organisms by Plants, Nature **167**: 347 (March 3) 1951.

MUSCLE RELAXANTS IN LOW-BACK DISORDERS

Schlesinger and Stinchfield [1] have reported on the use of the muscle relaxant mephenesin as a diagnostic and prognostic aid in acute disorders of the lower back. They administered the drug intravenously to 64 hospitalized patients with acute symptoms and signs of herniated intervertebral disk and observed its effect on the pain and on the results of the straight-leg-raising test. Four types of reaction were noted: (1) abrupt relief of low-back and sciatic pain and striking increase in the range of leg motion, (2) abrupt relief of pain with only slight or moderate increase in range of leg motion, (3) abrupt relief of pain with no increase in motion, and (4) rapid relief of local pain, paradoxical aggravation of radiating pain and decrease or no change in straight-leg-raising ability. Patients with the first type of reaction often obtained persistent relief from this test administration of mephenesin, and a high percentage left the hospital symptomatically well after a period of conservative treatment. These patients, some of whom showed unequivocal myelographic evidence of herniated intervertebral disk, were regarded as having reversible nerve root compression, possibly aggravated by reflex muscle spasm. Patients with the third or fourth type of reaction to mephenesin invariably failed to respond to subsequent conservative treatment, and all required surgical intervention within three months. At operation in each case, there was found a large protrusion of the intervertebral disk producing irreducible root compression. Patients with the second type of reaction to mephenesin formed an intermediate group; some required surgical treatment, and others responded to conservative management. Thus in all but the second group the mephenesin test had definite prognostic value at least as far as the response of the immediate attack to therapy was concerned. This is of considerable practical significance in a condition in which the choice between conservative and surgical treatment is often difficult. An accurate prognosis can spare many patients the economic burden of long periods of useless conservative therapy while assuring others, who are likely to benefit from it, of an adequate trial of nonsurgical therapy.

Whether this test will prove more helpful in this respect than the procaine hydrochloride test of Steindler [2] can be determined only by further clinical trial. It already appears that mephenesin is superior to procaine in the relief of local muscle spasm. Because in large doses, it can produce paralysis, however, mephenesin must be given cautiously and only to hospitalized patients who do not show muscular weakness or serious neurologic disturbance. In these experiments a 2% solution administered intravenously produced no hemoglobinuria or other serious side effects. Given orally, the drug proved unsatisfactory in the hands of these investigators.

The muscle relaxation produced by mephenesin has also been found helpful as an adjunct to traction and in the relief of pain in various low-back syndromes, by the above-mentioned authors and by others,[3] but it appears likely that the drug will have its greatest usefulness in differential diagnosis and prognosis.

RELATIONSHIP BETWEEN EPIDEMIC KERATOCONJUNCTIVITIS AND THE NERVOUS SYSTEM

Ruchman [1] has recently shed interesting and additional light on the nature of the epidemic keratoconjunctivitis (EK) virus. This work, confirmed by Cheever,[2] suggests the possibility that the virus of epidemic keratoconjunctivitis, originally isolated by Sanders,[3] has a biphasic pathogenicity referable to ocular and nervous tissues. The recent findings indicate a close immunologic relationship between the viruses of epidemic keratoconjunctivitis and St. Louis encephalitis; indeed, the two agents could not be differentiated by intracerebral neutralization tests. A similar relationship, but to a lesser degree, was demonstrated between epidemic keratoconjunctivitis and Japanese and West Nile encephalitis viruses. The only demonstrable difference between epidemic keratoconjunctivitis and St. Louis viruses was to be found in the increased pathogenicity of the epidemic keratoconjunctivitis virus for rabbits. These findings are consistent with those of Sanders, who reported passage of his original virus through graded collodion membranes with an average pore diameter of 75 to 100 mμ, while those membranes with an average pore diameter of less than 50 mμ retained the virus.

During the 1942 epidemics, which involved thousands of industrial workers in California and New York, a severe ocular disease was observed in as high as 10% of factory personnel. Even at that time, severe headaches associated with the conjunctivitis and unrelieved by analgesics were observed by the University of Miami investigator. Furthermore, two cases in Schenectady showed possible central nervous system involvement.[4]

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[1] Schlesinger, E. B., and Stinchfield, F. E.: The Use of Muscle Relaxants as an Aid in the Diagnosis and Therapy of Acute Low-Back Disorders, J. Bone & Joint Surg. **33A:** 480 (April) 1951.

[2] Steindler, A., and Luck, J. V.: Differential Diagnosis of Pain Low in the Back; Allocation of the Source of Pain by the Procaine Hydrochloride Method, J. A. M. A. **110:** 106 (Jan. 8) 1938.

[3] Berger, F. M., and Schwartz, R. P.: Oral "Myanesin" in Treatment of Spastic and Hyperkinetic Disorders, J. A. M. A. **137:** 772 (June 26) 1948.

[1] Ruchman, I.: Immunological Relationship of Epidemic Keratoconjunctivitis Virus, read before the meeting of the Society of American Bacteriologists, Chicago, May 29, 1951.

[2] *Cheever, F. S.: Studies on Possible Relationship Between Viruses of* St. Louis Encephalitis and Epidemic Keratoconjunctivitis, Proc. Soc. Exper. Biol. & Med. **77:** 125 (May) 1951.

[3] Sanders, M.: Epidemic Keratoconjunctivitis ("Shipyard Conjunctivitis"): Isolation of a Virus, Arch. Ophth. **28:** 581-586 (Oct.) 1942. Sanders, M., and Alexander, R. C.: Epidemic Keratoconjunctivitis: Isolation and Identificiation of Filterable Virus, J. Exper. Med. **77:** 71-96 (Jan.) 1943. Sanders, M.; Gulliver, F. D.; Forchheimer, L. L., and Alexander, R. C.: Epidemic Keratoconjunctivitis: Clinical and Experimental Study of Outbreak in New York City; Further Observations on Specific Relationship Between a Virus and the Disease, J. A. M. A. **121:** 250-255 (Jan. 23) 1943.

The present clarification of this problem throws an important light on virus diseases with respect to potential multiple variants within a single disease agent. In the case of epidemic keratoconjunctivitis, we are apparently dealing with an agent capable of great ocular infectivity, potentially neurotropic in character. The relationship between epidemic keratoconjunctivitis and the neurotropic virus is closely paralleled in the herpes simplex virus, insofar as the herpes virus is capable of infecting the eyes of humans and then quickly reverting to a strongly neurotropic agent by passage in laboratory animals. However, in the case of the herpes virus, the agent is approximately 125 mμ, and neutralizing antibodies are found in as high as 75% of unselected adult serums.[5] Epidemic keratoconjunctivitis, on the other hand, has a calculated measurement of approximately 35 mμ, and neutralizing antibodies against it are not found in a so-called normal population.[6]

ALCOHOL IN PULMONARY EDEMA

The usefulness of ethyl alcohol in the treatment of paroxysmal pulmonary edema in rabbits and dogs has recently been demonstrated by Luisada.[1] Working on the theory that the respiratory obstruction occurring in pulmonary edema is due chiefly to the foaming of the fluid present rather than to its volume per se, this investigator tested the effects of a number of antifoaming agents administered by inhalation to animals with experimental pulmonary edema. Of the agents used, 95% alcohol in subanesthetic doses produced the most satisfactory results. It doubled the survival time of rabbits with pulmonary edema produced by intravenously administered epinephrine and completely prevented pulmonary edema in dogs subjected to rapid intracarotid infusion with isotonic sodium chloride solution. This effect was thought to be due to the local antifoaming action of alcohol, but it was subsequently observed that larger, mildly anesthetic doses of 50% alcohol given by gavage or enema had a similar action. Subanesthetic doses of 25% alcohol administered intravenously also showed definite, but less pronounced, therapeutic effect. These observations suggest that the depressant action of alcohol on the central nervous system also played a therapeutic role. It is possible that both factors were active, since alcohol in the blood stream may be excreted through the lungs, exerting a local effect, while inhaled alcohol may be absorbed into the blood stream, with consequent central action.

In similar experiments, it was found that the combination of alcohol by inhalation and morphine by injection produced better results than either one alone and that these results were equivalent to those obtained with morphine plus inhalations of oxygen under pressure. This led Luisada to suggest that the combination of morphine, alcohol vapor, and oxygen under pressure might prove most effective in the treatment of pulmonary edema. Therapeutic trials with alcohol inhalations in man are now in progress.

IRRADIATED TUBERCULOSIS VACCINE

Milzer[1] and associates of Michael Reese Hospital, Chicago, report evidence that ultraviolet-killed tuberculosis vaccine is superior to BCG vaccine as a prophylactic agent. Mycobacterium tuberculosis (hominis) grown for 14 days on Petragnani medium was harvested, weighed, suspended in sterile distilled water, ground for 30 minutes in a ball mill, and then diluted so as to contain 1 mg. of moist bacilli per cubic centimeter. Exposure for 0.5 seconds to ultraviolet irradiation was found sufficient to kill the bacteria, after which 1:10,000 thimerosal was added as a preservative and the killed vaccine was stored in the refrigerator at 3 to 5 C. Freshly prepared viable BCG vaccine was used in comparison.

Comparative active immunization tests were made on groups of 24 to 40 mice. At weekly intervals, each mouse was given four subcutaneous injections of 0.5 mg. of the selected vaccine. Thirty days after the fourth dose, each mouse was given a challenging dose of 0.001 to 0.025 mg. of the 14-day-old slant cultures of H37Rv tubercle bacilli suspended in 2.5% gastric mucin. Half of the challenging dose was given subcutaneously and half intraperitoneally. Control tests were made on nonimmunized mice. All animals were killed 30 days after the challenge dose and examined carefully for lesions.

Without exception, all control mice presented gross lesions, ranging in size from 2 to 4 mm., at the site of the inoculation, or in the liver, spleen, or peritoneum. Gross lesions developed in only 53% of the mice given the viable BCG vaccine and in only 37.5% of those given the nonviable irradiated vaccine. The irradiated vaccine thus appeared to afford better protection than the BCG vaccine against subsequent tuberculosis.

This superiority was not evident, however, in similar experiments performed by Olson[2] and Sarber[3] on guinea pigs. Using larger challenging doses of virulent bacilli and longer periods of observation, they found that the protection afforded by the two types of vaccine was about equal. That the protection was not complete is indicated by the observation that 32% to 55% of the vaccinated animals died within four months after infection. This was in contrast to a mortality rate of 71% in the unvaccinated animals.

Aside from the question of its relative antigenicity, however, the irradiated vaccine has other advantages over BCG. Unlike viable BCG, it contains a preservative that prevents contamination with pathogens; also, it is remarkably stable, retaining its potency for as long as 12 months after its preparation.

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[5] Andrewes, C. H., and Carmichael, E. A.: Note on Presence of Antibodies to Herpes Virus in Post-Encephalitic and Other Human Sera, Lancet **1**:857-858 (April 19) 1930.

[6] Korns, R. F.; Sanders, M., and Alexander, R. C.: Epidemic Keratoconjunctivitis: Correlation of *Epidemiologic Data* and Results of Serum Virus Neutralization Tests, Am. J. Pub. Health **34**:567-571 (June) 1944.

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[3] Sarber, R. W.; Nungester, W. J., and Stimpert, F. D.: Am. Rev. Tuberc. **62**:418, 1950.

ORGANIZATION SECTION

COMMITTEE ON CONSTITUTION AND BY-LAWS

The permanent Committee on Constitution and By-Laws of the American Medical Association held its organizational meeting during the annual session at Atlantic City. Dr. Louis A. Buie of Rochester, Minn., is Chairman. The other members of the Committee are Dr. Stanley H. Osborn, Hartford, Conn.; Dr. Britton E. Pickett Sr., Carrizo Springs, Texas; Dr. James S. Stevenson, Tulsa, Okla.; Dr. Floyd S. Winslow, Rochester, N. Y.; the President, Dr. John W. Cline; the Secretary, Dr. George F. Lull; the Assistant Secretary, Dr. Ernest B. Howard; the representative of the Board of Trustees, Dr. Edwin S. Hamilton; the Speaker of the House of Delegates, Dr. F. F. Borzell, and the Vice Speaker, Dr. James R. Reuling. Drs. Cline, Lull, Howard, Hamilton, Borzell, and Reuling are ex officio members of the Committee, without the right to vote.

Any member of the Association who has suggestions for amendments to the Constitution and By-Laws should send them to Dr. Buie, whose address is 102 Second Ave., S. W., Rochester, Minn. The Committee will make a report to the House of Delegates at the Clinical Session in Los Angeles in December.

FEDERAL LEGISLATION

Income Tax Deductions for Medical Expenses

Representative Clemente of New York introduced H. R. 4405, to allow medical and dental expenses as deductions from gross income for income tax purposes. The provisions of the present tax law permit a taxpayer, in arriving at taxable income, to deduct medical and dental expenses in excess of 5% of adjusted gross income, with a limitation on the total amount deductible. This bill proposes to permit a taxpayer to deduct all expenses paid during the taxable year, not compensated for by insurance or otherwise, for medical care of the taxpayer, his spouse, or other legal dependents. The term "medical care" is defined in its broadest sense to include diagnosis, cure, mitigation, treatment, and prevention of disease. Included also as deductible items would be amounts paid for health or accident insurance. The author introduced a similar but not identical bill in the 81st Congress.

STATE LEGISLATION

Alabama

Bills Introduced.—H. 444, proposes regulations requiring every dog owner to cause his dog to be inoculated against **rabies** by the rabies inspector once each year. S. 3401, proposes the creation of a **State Board of Chiropractic Examiners** and proposes that a person shall be regarded as practicing chiropractic who shall employ objective or subjective means without the use of drugs, surgery, X-ray therapy or radium therapy, for the purpose of ascertaining the alignment of the vertebrae of the human spine, and the practice of adjusting the vertebrae to correct any subluxation or malalignment thereof.

California

Bills Introduced.—A. 3456, to amend that the Health and Safety Code, proposes to make it a felony to sell, furnish, administer, give or offer to sell, furnish, administer or give any **narcotic to a minor.** S. R. 187, proposes the creation of an Interim Committee on **Narcotics and Hypnotics** to ascertain, study and analyze all facts relating to narcotics and hypnotics including the operation, effect, administration, enforcement and needed revision of all laws relating thereto. S. 1542, proposes to amend the initiative act relating to **chiropractic** by authorizing the Board of Chiropractic Examiners to issue a certificate authorizing the holder thereof to practice chiropractic and other forms of therapy as taught in chiropractic schools or colleges.

Florida

Bills Enacted.—H. 1440 became Law Without Approval June 11, 1951. It provides for the creation of a special **hospital district** for Broward County. S. 254 was approved June 4, 1951. It provides for the establishment and operation of a State Hospital for **alcoholism.** S. 325 was approved May 28, 1951. It amends the law prohibiting **trafficking** in the **dead body of a human being** and provides that nothing in such law should be construed to prohibit the obtaining, dissecting, using and disposing of dead bodies for the purpose of teaching or other appropriate university research by any medical school, dental school, school of nursing or other university research or teaching unit which is a part of a regularly established or chartered institution of higher learning under the Laws of the State.

Illinois

Bills Introduced.—S. 275, to amend the Workmen's Compensation Law, proposes to authorize the payment of compensation for loss of the **industrial use** of one or both **ears.** S. 773, proposes the creation of a Commission on **Tuberculosis** Problems to study all matters pertaining to intergovernmental and other cooperation in the control and eradication of tuberculosis. S. 755, to amend the Medical Practice Act, proposes regulations for the issuance of **Temporary Certificates of Registration** to persons who are nonresidents of the State, who have a Doctor of Medicine degree, and who wish to pursue programs of graduate or specialty training in the State.

Bill Enacted.—H. 163 was approved June 14, 1951. It repeals and re-enacts the law relating to the practice of **nursing.**

Michigan

Bills Enacted.—H. 319 has become Public Act No. 249 of the Acts of 1951. It amends the Michigan **Hospital Survey and Construction** Act by increasing the number of members of the Advisory Hospital Council from 11 to 12 and by specifying that one member of such council shall be appointed from a list of full time help officers submitted by the Board of Directors of the Michigan Health Officers Association. S. 152 has become Public Act No. 231 of the Acts of 1951. It proposes certain amendments to the law providing for the licensing of **maternity or lying-in hospitals.**

Missouri

Bill Introduced.—H. 275, proposes certain amendments to the law regulating the sale of **narcotic drugs** by, among other things, providing for the establishment of a Narcotic Drug Act Fund, into which shall be placed all fees collected for narcotic licenses and out of which shall be paid the expenses incurred by the division of health in the administration of the law regulating narcotic drugs.

Ohio

Bill Enacted.—H. 516 was approved June 18, 1951. It provides for the issuance of **special automobile licenses** bearing the word "physician" to persons holding unrevoked and unexpired licenses to practice medicine in the State.

Wisconsin

Bills Enacted.—A. 473 has become Chapter 369 of the Laws of 1951. It amends the **basic science act** by exempting therefrom dental hygienists. A. 616 has become Chapter 368 of the Laws of 1951. It amends the medical practice act by eliminating reference to **osteopathy** and surgery and by providing that if six members of the board find an applicant qualified, the board shall issue a license to practice medicine and surgery to such applicant. S. 701 has become Chapter 371 of the Laws of 1951. It amends the medical practice act by authorizing the board of medical examiners and the board of chiropractic examiners to make use of the **injunctive process** to restrain violations of the law.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

PROCEEDINGS OF THE ATLANTIC CITY SESSION

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL SESSION IN ATLANTIC CITY, N. J., JUNE 11-15, 1951

(Concluded from page 854)

Resolution on Establishment of Single Membership Classification

Dr. George Earl, Minnesota, submitted the following resolution, which was referred finally to the Reference Committee on Amendments to Constitution and By-Laws:

WHEREAS, The new system of American Medical Association membership would appear to make the classification of "Fellow" an outmoded and unnecessary one; and

WHEREAS, Many active members of the American Medical Association feel that no purpose is served by requiring the payment of an extra $5 for the privilege of program participation, serving in the House of Delegates or as an official of the American Medical Association; and

WHEREAS, The present membership stratum is inconsistent with the democratic foundation and objectives of the American Medical Association; therefore be it

Resolved, That the American Medical Association establish a single member classification, providing all active members with equal rights and privileges.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO CONSTITUTION AND BY-LAWS

Dr. Robertson Ward, Chairman, submitted the following report, which was duly adopted:

To your reference committee were referred three resolutions having to do with single membership in the American Medical Association, involving the abandonment of Fellowship. These were introduced by Dr. Woodhouse of Ohio, Dr. McKittrick of Massachusetts and Dr. Earl of Minnesota. A very thorough discussion was held on the pros and cons, with the following result: That your reference committee approves the principle involved in these resolutions, especially as to eligibility of members to take part in organizational and scientific programs of the American Medical Association without the necessity of other than regular membership. Since there is a definite question of the advisability of abandoning the term "Fellowship," it is the recommendation of your committee that this matter be referred to the standing committee of the House on Constitution and By-Laws, with instructions to prepare such changes in the Constitution and By-Laws, in consultation with the Board of Trustees, as may be necessary to carry out these recommendations, and with instructions to present these necessary changes to the House of Delegates at its next meeting.

Resolution on Standardized Form for Reporting Health and Accident Cases

Dr. George Earl, Minnesota, submitted the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Reporting health and accident cases to insurance companies could be simplified and expedited by one standard form, adopted by all insurance companies concerned with this form of coverage; and

WHEREAS, The advantages of a single form would also increase the efficacy of procedures under the Workmen's Compensation Law; therefore be it

Resolved, That the problem of eliminating diversity of insurance reporting forms be referred to the proper committee of the American Medical Association, with instructions to create a standardized form for reporting health and accident cases.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report, which was duly adopted:

In view of the various state laws, it would be difficult and physically impossible to have a standardized form that would comply with the laws of the 48 states. Your reference committee recommends that this matter be handled on an individual state level. Therefore, the reference committee disapproves this resolution.

Resolution on Payment of American Medical Association Dues

Dr. George Earl, Minnesota, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, There has been misunderstanding regarding the transition of the $25 payment to the American Medical Association, from the category of "special assessment" to "annual dues"; and

WHEREAS, Many physicians who did not remit their 1950 dues and who now wish to become members and pay their 1951 dues, have been classified as delinquent members and can no longer be members of the American Medical Association until their 1950 dues have been paid; and

WHEREAS, Many physicians were aware that the special assessment in 1949 was not considered legally binding and, therefore, considered the same to hold true of the 1950 payment; therefore be it

Resolved, That the American Medical Association reconsider its decision of December 1949 and accept payment of 1951 dues, regardless of the payment or nonpayment of 1950 dues.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report, which was duly adopted:

Your reference committee recommends disapproval of this resolution.

Resolutions on Publicizing American Medicine

Dr. Edward P. Flood, New York, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The American Medical Association wisely expended large sums of money to conduct its recent National Education Campaign; and

WHEREAS, Failure to follow up this campaign by repeated presentation of the true story of American medicine to the public may cost much of the advantage gained; and

WHEREAS, Most physicians make substantial contributions annually to educational, welfare, religious and eleemosynary groups and this follow-up may be accomplished by purchasing advertising space in their journals, annuals and programs; and

WHEREAS, The Principles of Medical Ethics rightfully precludes the use of this space for advertising the individual physician; therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby endorses the use of such advertising space for slogans which would advance the cause of American medicine; and be it further

Resolved, That the Public Relations Bureau of the American Medical Association is hereby directed to draft a number of appropriate slogans for use by the members of the American Medical Association; and be it further

Resolved, That said slogans be published in The Journal of the American Medical Association with appropriate comment.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. L. G. Christian, Chairman, presented the following report, which was duly adopted:

The resolutions introduced by Dr. Edward Flood of New York have been amended as follows:

WHEREAS, The American Medical Association wisely expended large sums of money to conduct its recent National Education Campaign; and

WHEREAS, Failure to follow up this campaign by repeated presentation of the true story of American medicine to the public may cost much of the advantage gained; and

WHEREAS, Most physicians make substantial contributions annually to educational, welfare, religious and eleemosynary groups and this follow-up may be accomplished by purchasing advertising space in their journals, annuals and programs; and

WHEREAS, The Principles of Medical Ethics rightfully precludes the use of this space for advertising the individual physicians, but does not preclude the use of such space for such short slogans as would advance the cause of American medicine; therefore be it

Resolved, That the House of Delegates of the American Medical Association hereby endorses the use of such advertising space for slogans; and be it further

Resolved, That the Public Relations Department of the American Medical Association is hereby directed to draft a number of appropriate slogans for use by the members of the American Medical Association for this purpose.

Your Committee approves this resolution as amended, and recommends its adoption.

Resolutions on Emergency Medical Call Service

Dr. Harold F. R. Brown, New York, presented the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

Whereas, An emergency medical call service is of proven value both as a community public service and a means of good public relations between a physician and his community; and

Whereas, Participation in such a service is not onerous if many physicians cooperate; and

Whereas, Every county medical society has been asked to operate such an emergency service; therefore be it

Resolved, That every doctor below the age of 35 years, regardless of his type of practice, be urged to participate in his community's emergency call plans; and be it further

Resolved, That all national specialty boards be requested by the Secretary of the American Medical Association to facilitate such general participation by assuring their members and potential members that they may participate in such a community activity without jeopardy to specialty ratings.

Report of Reference Committee on Insurance and Medical Service

Dr. William R. Brooksher, Chairman, presented the following report, which was duly adopted:

Your committee recommends approval of these resolutions with the provision that they be amended to read that all national specialty boards be requested by the American Medical Association to facilitate such general participation by assuring their members and potential members that they may participate in such a community activity without jeopardy to specialty ratings.

Resolution on Communism

Dr. L. A. Alesen, California, submitted the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The American Medical Association and its constituent state and component county societies have taken the lead in a nationwide fight to regain and preserve for Americans their birthright of individual freedom; and

Whereas, In a time of clear and present danger, there is no place for neutrality; therefore be it

Resolved, That the American Medical Association hereby expresses its supreme contempt for and its unalterable opposition to communism, nazism, fascism, state socialism, or any other form of collectivism, because these philosophies and the social and economic orders representing them violate nature's fundamental age-old principle of individual responsibility and therefore can never produce anything but human poverty, misery and ultimate moral and spiritual disintegration.

Report of Reference Committee on Miscellaneous Business

Dr. Andrew A. Eggston, Chairman, submitted the following report, which was adopted unanimously:

Resolution on Communism: Your Reference Committee wishes to offer the present substitute motion which amounts to a rewording of the original resolution:

Whereas, The American Medical Association and its constituent state and component county societies have taken the lead in a nationwide fight to regain and preserve for Americans their birthright of individual freedom; therefore be it

Resolved, That the American Medical Association hereby expresses its unalterable opposition to communism, nazism, fascism, state socialism or any other form of collectivism, because these philosophies and the social and economic orders representing them violate the principles on which this country was founded.

Your Reference Committee recommends approval of this substitute resolution.

Proposed Amendment to By-Laws, Chapter IX, Section 1 (B)

Dr. J. P. Wall, Mississippi, presented the following proposed amendment to Chapter IX, Section 1(B), which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

Amend Chapter IX, Section 1 (B) by adding to the first paragraph the following sentence:

"Past Presidents of the American Medical Association shall serve for a period of five years immediately following their tenure of the presidency of the American Medical Association."

So amended, the first paragraph of Section 1 (B) of Chapter IX of the By-Laws would read as follows:

Term—Delegates and alternates from constituent associations, sections, the United States Army, the United States Navy, the United States Air Force, the United States Public Health Service and the Veterans Administration shall be elected or appointed, as the case may be, for two year terms and shall assume office on January 1 of the year succeeding their election or appointment, except that incumbent delegates on the date of the adoption of these By-Laws shall serve until their successors are elected and assume office. Constituent associations entitled to more than one representative shall elect them so that one half the number, as near as may be, are elected each year. Past Presidents of the American Medical Association shall serve for a period of five years immediately following their tenure of the presidency of the American Medical Association.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. Robertson Ward, Chairman, submitted the following report, which was duly adopted by a standing vote, and referred by the Speaker to the Interim Committee on Constitution and By-Laws for proper wording:

Resolution presented by Dr. Wall of Mississippi making Past Presidents of the American Medical Association members of the House of Delegates for five years, with power to vote: It will be remembered that a similar resolution, which did not limit membership in the House, was rejected at our last session. It is felt by your committee that the five year limitation included in this resolution has eliminated the objectionable features of the previous resolution, and that this resolution should now be accepted. The acceptance and implementation of this resolution requires the folowing changes in the Constitution:

Article 6, Section 2, referring to the composition of the House of Delegates, shall be changed by substituting a comma for "and" at the end of the second line, and adding to the sentence, after "as the case may be, of the respective service," the words "and the five immediate Past Presidents of the American Medical Association." The following sentence shall be changed to read: "The general officers, the Past Presidents of the Association (excluding the five immediate Past Presidents), the General Manager", etc. Since this is a change in the Constitution, it is now introduced and will have to lay over until the next session, at which time a change in the By-Laws will need to be made.

Resolution on Emeritus and Retired Membership

Dr. Warren W. Furey, Illinois, presented the following resolution, which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

Whereas, Many component county and several constituent state medical societies have classes of non-dues-paying members such as retired and emeritus; and

Whereas, Some such members have been relieved of dues because of disability and loss of income; and

Whereas, The recent action of the House of Delegates of the American Medical Association in adopting dues for all members except in hardship cases; and

Whereas, Such membership dues are a hardship in many cases of retired members; and

Whereas, Such membership dues do detract from the honor and distinction accorded emeritus and like members; therefore be it

Resolved, That the House of Delegates of the Illinois State Medical Society be urged to present a resolution to the American Medical Association at its annual meeting, recommending that the Constitution and By-Laws Committee of that body arrange for classes of membership for both retired and emeritus members with relief from payment of dues in the American Medical Association.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. Robertson Ward, Chairman, presented the following report, which was duly adopted:

Resolution on Emeritus and Retired Membership: This resolution was approved by the committee in principle and is referred to the Interim Committee on Constitution and By-Laws for implementation.

Resolution on Abolishment of "Fellowship" in the American Medical Association

Dr. George A. Woodhouse, Ohio, presented the following resolution, which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

Whereas, There is confusion, misunderstanding and criticism among many members of the American Medical Association regarding "Fellowship"; and

Whereas, In the opinion of many members, "Fellowship" is now unnecessary inasmuch as all active members of the American Medical Association are now provided with issues of The Journal of the American Medical Association and permitted to attend sessions of the American Medical Association as a part of their membership privileges; and

Whereas, Many active members believe that payment of special "Fellowship dues" should not be required of an active member in order for him to become eligible to be a program participant or to serve in the House of Delegates or as an official of the American Medical Association; and

Whereas, The relationship between the American Medical Association and its members would be improved by establishing a single membership classification which would entitle all members to uniform and equal benefits and privileges; and

Whereas, The contention that "Fellowship" is necessary in order to give the American Medical Association certain control over matters of professional conduct and ethics is untenable for the reason that a physician who is unworthy of "Fellowship" is, and should be considered, unfit for membership; therefore be it

Resolved, That the House of Delegates of the American Medical Association in annual session in Atlantic City, June 11 to 15, 1951, favors the elimination of that classification of members known as "Fellowship" and instructs the Board of Trustees to prepare appropriate amendments to the Constitution and By-Laws for action by the House of Delegates at the next session of the American Medical Association.

(For the report of Reference Committee on Amendments to Constitution and By-Laws see its report on Resolution on Establishment of Single Membership Classification.)

Resolution on Dissemination of Health Insurance News

Dr. George A. Woodhouse, Ohio, presented the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

Whereas, Extension of voluntary health insurance is a most important part of the program of the American Medical Association; and

Whereas, Other groups active in this field have the advantage of coordination on a nation-wide level, while the medical profession's activities are planned and implemented in state and county medical societies; and

Whereas, There is no present medium whereby significant progress in this field is brought promptly to the attention of practitioners and to their representatives responsible for fostering and extending voluntary insurance; now therefore be it

Resolved, That the American Medical Association arrange for regular dissemination of health insurance news in a publication of the American Medical Association.

(For report of Reference Committee on Insurance and Medical Service see its report under Report and Supplementary Report of Council on Medical Service.)

Resolution on Distribution of Interns

Dr. George A. Woodhouse, Ohio, presented the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

Whereas, The continuing unequal distribution of interns between the university and non-university hospitals is becoming more glaringly apparent, the university hospitals having one intern to each 21⅓ beds while the non-university hospitals have only one intern to every 60 beds; and

Whereas, The non-university hospitals are caring for 75% of the total patients at present and would be called on to shoulder an even larger percentage of the case load in event of a civilian disaster; and

Whereas, This situation of intern shortage in the non-university hospitals has been referred to a committee of the American Medical Association for study and remedial recommendations; and

Whereas, To date there have been no suggested methods of relief forthcoming from this committee; therefore be it

Resolved, That the American Medical Association Committee on Training of Interns expedite the preparation of a report containing practical suggestions toward the immediate solution of this critical intern problem.

(For the report of the Reference Committee on Medical Education and Hospitals see its report under Resolution on Distribution of Interns previously submitted.)

Resolution on Dissemination of Factual Information Pertaining to the Practice of Medicine

Dr. George A. Woodhouse, Ohio, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, False and misleading information is being disseminated in popular magazines regarding the practice of medicine in hospitals and the policies of the American Medical Association; be it hereby

Resolved, That the American Medical Association be requested to take immediate steps to inform and educate effectively the public, hospital trustees and the medical profession as to the facts pertaining to the practice of medicine in hospitals and the American Medical Association principles governing the same.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, stated that the Reference Committee on Miscellaneous Business recommends the approval of the resolution and the report was duly adopted.

Resolution on Publicizing Plans of American Medical Association

Dr. George A. Woodhouse, Ohio, submitted the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Whereas, The prospect of an insufficient number of physicians to serve the people of the United States in the next ten to twenty years has been given widespread publicity through newspapers and magazines and by radio; and

Whereas, The reasons for predicting a shortage of doctors as outlined in these various articles appear reasonable and understandable because of the arguments presented; and

Whereas, The American Medical Association is accused of obstructing plans for increasing the training program for physicians; therefore be it

Resolved, That the American Medical Association prepare specific replies to these arguments, pointing out in detail the plans the Association has to combat or forestall the anticipated shortage and, furthermore, that efforts be made to have statements on this question publicized by the press and radio for the purpose of acquainting the public with the American Medical Association plans.

Resolution on Standards of Qualifications to Permit Physicians to Apply Radium in Hospitals

Dr. E. P. Pendergrass, Section on Radiology, presented the following report, which was referred to the Reference Committee on Medical Education and Hospitals:

Whereas, The matter of formulating desirable standards of qualifications to permit physicians to apply radium in hospitals has presented a problem to many hospital staffs; and

Whereas, The physicians on such staffs look to the American Medical Association for guidance in matters of this sort; and

Whereas, A committee of radiation therapists has embodied its recommendations in a report on this specific question; therefore be it

Resolved, That the American Medical Association adopt and disseminate the attached report on desirable standards of qualifications to permit physicians to apply radium in hospitals.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. William Bates, Chairman, presented the following report, which was duly adopted:

Your Reference Committee on Medical Education and Hospitals wishes to report on the resolution presented from the Section on Radiology by the delegate from that section, Dr. E. P. Pendergrass. This consisted of a set of standards signed by five members of the American College of Radiology, to formulate desirable standards of qualifications to permit physicians to apply radium in hospitals. These standards are as follows:

Radium element, its disintegration products, as well as radioactive isotopes, should be under the supervision of one certified in radiology or therapeutic radiology.

Any department of radiology recognized for the training of candidates for the certificate in radiology or therapeutic radiology, should have available an adequate supply of radium suitable for surface and interstitial application.

Ideally, such a department should have a physicist qualified in radiation physics by the Board of Radiology, preferably as a full time member of the department; such a physicist to be available in consultation for dosage problems involving radium as well as responsible for the safe housing of radioactive isotopes, the protection of patient and personnel, and the disposal of waste products.

No one shall be permitted to use radium, its derivatives, or radioactive isotopes unless screened and approved by the director of the department.

Where this is not practicable, the house staff should consult the nearest advisory committee on radium and radioactive isotopes, composed of a therapeutic radiologist, a physicist, a gynecologist, a urologist, a surgeon, and an internist, each certified by his respective board.

This committee shall determine who, from experience and training, shall be permitted to use these modalities and under what conditions. If, after permission to use these substances is granted, a staff member applies the same in a manner not consonant with current knowledge, then their use in the future should be denied him.

Just as the chief surgeon supervises the work of the staff surgeons under him, recommending the dismissal of an incompetent operator, similarly the director of the department of radiology, where he is solely in charge of radium and radioactive isotopes or the committee on radium, etc., should have the power to refuse radium and radioactive isotopes to anyone who has proved incompetent in their use.

The American Board of Radiology has for a good while discontinued any effort at certifying persons in the therapeutic use of radium only, recognizing that certification in radiology or therapeutic radiology of necessity entails a knowledge and experience with both x-rays and radium.

The government agencies having to do with providing and lending radium to institutions, such as the National Institutes of Health, insist on the man in charge being certified by the American Board of Radiology before they will provide facilities including radium for use in that institution.

It is true that certification in radiology or therapeutic radiology does not of itself make one a therapeutic radiologist, but such certification or its equivalent would seem to be the minimum requirement for one to be granted the use of radium or its derivatives. Certification plus experience, to be sure, is the ideal.

It is the opinion of this committee that matters of certification in radiation and regulation of standards pertaining thereto are the province of the American Board of Radiology. Other organizations will in the interest of patient care wish to encourage and maintain such standards and dissuade tendencies that would break them down.

The original called for "Where this is not practicable a committee on radium and radioactive isotopes shall be established, composed of a therapeutic radiologist, a physicist, a gynecologist, a urologist, a surgeon and an internist each certified by his respective board."

Your committee feels that if this is to be distributed through the Council on Medical Education and Hospitals, it should read as follows:

Where this is not practicable, the hospital staff should consult the nearest advisory committee on radium and radioactive isotopes, composed of a therapeutic radiologist, a physicist, a gynecologist, a urologist, a surgeon and an internist, each certified by his respective board or of comparable ability.

Your committee commends the Section on Radiology on this suggested set of standards and recommends that this House of Delegates refer this matter to the Council on Medical Education and Hospitals with the recommendation for distribution to hospitals in the United States.

Resolution on Delinquent 1950 Dues

Dr. John K. Glen, Texas, submitted the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The present requirements of membership in the American Medical Association require that all delinquent dues be paid to the Association before such membership may be retained; and

WHEREAS, Through no fault of their own, certain former members of the Association find themselves delinquent in their 1950 dues; and

WHEREAS, These policies in certain circumstances are detrimental to the best interests of the profession and therefore to the public; now be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to re-evaluate the position of the American Medical Association regarding delinquent 1950 dues.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, reported that the Reference Committee on Miscellaneous Business approves the resolution, and the report was duly adopted.

Resolution on Free Speech

Dr. L. S. McKittrick, Massachusetts, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Freedom of thought and of expression of ideas are fundamental to the way of life of Americans; and

WHEREAS, Free discussion of controversial matters is a carefully guarded prerogative of scientists; and

WHEREAS, It has been alleged by certain critics that the editorial policy of the American Medical Association has resulted in the restriction or exclusion from publication of the views of minority groups of physicians in certain areas of discussion; therefore be it

Resolved, That the House of Delegates directs that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION welcome and provide space for the considered discussion from varying points of view on problems pertaining to medical education and the availability, cost, distribution and organization of medical services.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, submitted the following report, which was duly adopted:

Your reference committee wishes to offer a substitute resolution, which has been accepted by the Massachusetts delegation:

WHEREAS, It has been alleged that minority opinion is restricted or excluded from publication in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION; therefore be it

Resolved, That the House of Delegates of the American Medical Association reaffirms that it is the present policy to publish in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION considered discussion of controversial medical matters submitted by member physicians.

Your reference committee recommends the approval of the substitute resolution.

Resolution on Membership and Fellowship

Dr. L. S. McKittrick, Massachusetts, submitted the following resolution, which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

WHEREAS, The distinction between "Fellowship" and "membership" in the American Medical Association is causing dissatisfaction and confusion among members; and

WHEREAS, The relationship between the American Medical Association and its members would be improved by establishing a single membership classification which would entitle all members to uniform and equal benefits and privileges; and

WHEREAS, Circumstances no longer warrant continuation of an artificial, unnecessary and undemocratic distinction between "Fellowship" and "membership"; and

WHEREAS, Harmony among members and efficiency in the organization would be promoted by a discontinuance of the double classification; therefore be it

Resolved, That the House of Delegates of the American Medical Association in annual session at Atlantic City, June 11-14, 1951, favors the elimination of that class of membership known as "Fellowship" and instructs the Board of Trustees to prepare appropriate amendments to the Constitution and By-Laws for action by the House of Delegates at the next session of the American Medical Association.

(For report of Reference Committee on Amendments to Constitution and By-Laws, see its report under Resolution in Single Membership Classification.)

Resolution on Raising Funds

Dr. Warren L. Allee, for the Missouri delegation submitted the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The need for funds for the activities of this Association is of extreme interest to all members of the House of Delegates; therefore be it

Resolved, That the suggestion of Dr. Roland Klemme of St. Louis of a unique method of fund raising be given consideration by this House of Delegates.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Andrew A. Eggston, Chairman, presented the following report which was duly adopted:

Your reference committee has listened intently to the excellent presentation by Dr. Klemme on the subject of fund raising. Because of the possibilities of many entanglements of advertising, business and finance, your reference committee, after due consideration, does not believe that the House of Delegates should consider this matter at this time, and therefore does not approve of the resolution.

Report of Interim Committee on Constitution and By-Laws

Dr. Joseph D. McCarthy, Chairman, presented the following report, which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

Your Interim Committee on Constitution and By-Laws presents the following amendments to the Constitution and By-Laws for your consideration.

AMENDMENTS TO CONSTITUTION

The following amendments to the Constitution were introduced at the Clinical Session of the House of Delegates December 5-8, 1950, and are now submitted for your consideration:

Amendment to Article 5, Section 1, (B): This section of Article 5 has been re-edited. The intent has not been altered and your committee recommends that this section be considered during this meeting rather than held over until the next Clinical Session. The re-edited section reads as follows:

Associate membership in the American Medical Association shall be limited to those members of the constituent associations who are ineligible for active membership in the American Medical Association as defined in Article 5, Section 1 (A) and who hold the degree of Doctor of Medicine or Bachelor of Medicine subject to provisions of the By-Laws.

Amendment to Article 5, Section 1: Add the following new paragraph (C): (C) A member shall retain his active or associate membership as long as he complies with the provisions of the Constitution and By-Laws and with the Principles of Medical Ethics of the American Medical Association.

Amendment to Article 6, Section 2: Your committee recommends that amendment to this section of Article 6 be amended to read as follows and be held over until the next session of the House of Delegates inasmuch as an addition has been made by your committee which alters the intent as contained in the section when read during the immediate past Clinical Session.

The general officers, the Past Presidents of the Association, the General Manager, the Assistant Secretary and the Editor of The Journal of the American Medical Association, the chairmen of the several standing committees and two delegates elected by the Student American Medical Association shall be ex officio members of the House of Delegates without the right to vote.

Amendment to Article 6, Section 3: Your committee recommends that the amendment to this section of Article 6 be held over until the next session of the House of Delegates inasmuch as an addition has been made by your committee which alters the intent as contained in the section read during the immediate past Clinical Session:

The number of delegates from the constituent associations shall be proportional to the number of active members of the American Medical Association in the respective constituent associations as provided in the By-Laws.

Amendment to Article 11.—Funds: Dues and Assessments: Amend first sentence to read: Funds may be raised by equal annual dues or by assessment on each of the active members on recommendation by the Board of Trustees and after approval by the House of Delegates.

AMENDMENTS TO THE BY-LAWS

These amendments, introduced today, may be considered for disposition tomorrow by the House of Delegates.

Amendment to Chapter 1, Division One: Reword this Chapter to read:

Members in good standing of the constituent associations of the American Medical Association are eligible for either active membership or associate membership in the American Medical Association, provided they possess the qualifications set forth in Article 5 of the Constitution and after they have been certified officially for enrolment by the secretaries of their constituent associations to the Secretary of the American Medical Association.

Delete the last sentence of this Chapter, which pertains to the revision of the Constitution and By-Laws in 1947 and is now obsolete.

Amendment to Division One, Chapter II, Section 2. Dues: Annual dues may be prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates. Each active member shall pay said annual dues to the constituent association for transmittal to the Secretary of the American Medical Association.

Dues will include subscription to The Journal of the American Medical Association.

The Board of Trustees may excuse a member from payment of dues for the following reasons, provided he is fully or partially excused from the payment of local dues by his component and constituent associations.

(A) Members on whom the payment of dues would work a financial hardship. This fact must be certified to by the secretary of the member's component society;

(B) Members retired from practice;

(C) Interns and residents during the first five years following graduation except that the time spent in the military service may be excluded in calculating the five-year limit;

(D) A member temporarily in the Armed Forces. Dues will be remitted and prorated January 1 or July 1 following the date of the member's entrance into military service.

(E) Members over 70 years of age may be excused, on request, from the payment of American Medical Association dues regardless of local dues exemptions.

Amendment to Division Two, Chapter VII, Section 1. Titles: This merely provides recognition of the newly created Section on Military Medicine. Amend so that paragraph 20 reads "Military Medicine" and paragraph 21, "Miscellaneous Topics."

Amendment to Division Three, Chapter IX, Section 1. Delegates: (A) Qualifications.—In order to be eligible for election to membership in the House of Delegates a physician must have been (1) a member of the American Medical Association and a Member Fellow or (2) a Service Fellow of the Scientific Assembly for at least the two years immediately preceding the session of the House of Delegates in which he is to serve.

Amendment to Division 3, Chapter IX, Section 1 (C) by deleting the words "dues paying." This is made so that there will not be conflict with Article 6, Section 3, of the Constitution.

Amendment to Division Three, Chapter IX, Section 1 (E): It is recommended that this section be amended to read: (E) Status After Seating.—A delegate whose credentials have been accepted by the Reference Committee on Credentials and whose name has been placed on the roll of the House shall remain a delegate until final adjournment of that session. If a delegate is unable to be present on account of sickness or any other emergency, his place may be taken by his alternate if approved by the Credentials Committee. After the alternate has been seated he cannot be replaced.

Amendment to Division Three, Chapter X, Section 4:—This amendment has to do with a typographical error. Standing Committees. Delete the word "Councils" from title.

Amendment to Division Three, Chapter X, Section 4 (B): The Secretary of the American Medical Association is an ex officio member of all standing committees; therefore delete the word "Secretary" in line 3, page 30.

Amendment to Division Three, Chapter X, Section 5 (D): Change "(13) Miscellaneous Business" to "(14) Miscellaneous Business" and add a new (13) Medical Military Affairs, to which shall be referred all matters relating to military affairs or civilian defense.

Amendment to Division Three, Chapter 13, Section 4 (C) (E) and (F): This amendment has to do with punctuation. Delete periods and insert semicolons at the end of paragraphs (C), (E), and (F).

RECOMMENDATIONS FROM THE INTERIM COMMITTEE ON CONSTITUTION AND BY-LAWS RELATIVE TO MATTERS REFERRED BY THE REFERENCE COMMITTEE ON AMENDMENTS TO CONSTITUTION AND BY-LAWS AT THE 1950 CLINICAL SESSION OF THE HOUSE OF DELEGATES

The reference committee at the previous session recommended that the resolution of the Rhode Island Medical Society relative to the number of delegates in the constituent associations having fewer than 1,000 members be not adopted but that the problem be referred to the Interim Committee on Constitution and By-Laws for further study. This recommendation was approved by the House of Delegates. Your Interim Committee on Constitution and By-Laws concurs with the decision of the reference committee as adopted by the House of Delegates but at this time is unable to provide a solution of the problem.

Your committee has considered the recommendations of the reference committee regarding the voting rights of ex officio members of committees. An ex officio member, according to Robert's Rules of Order (Revised) has the right to vote unless otherwise specifically prohibited. It is the opinion of your committee that any organization has the right to determine whether or not an ex officio member of a committee has or has not the right to vote. Your committee would point out that in the Constitution and By-Laws of the American Medical Association this practice has been observed.

The Reference Committee on Amendments to Constitution and By-Laws of the immediate past Clinical Session recommended that the resolution introduced by Dr. William R. Brooksher, Arkansas, be referred back to the Interim Committee on Constitution and By-Laws for further study. This resolution had to do with the amendment of Division Three, Chapter XIII, Section 1, of the By-Laws. In this resolution it was recommended that this section be amended to read "The Board of Trustees shall consist of nine elected trustees as provided in Article 7 of the Constitution, the President and President-Elect. The Vice President, the Secretary, the Treasurer, the Speaker, the Vice Speaker, the General Manager and the Editor of The Journal may attend meetings of the Board. Your committee recommends that this resolution be not adopted.

The reference committee also recommended that the Interim Committee on Constitution and By-Laws "interpret and clarify" the term "executive session." Division Three, Chapter IX, Section (C)—(3) of the By-Laws reads as follows: An executive session shall be limited to the members of the House of Delegates as defined in Article 6, Section 2, of the Constitution and to such administrative employees of this Association and of the House of Delegates necessary for the functioning of the House. This section of the By-Laws as interpreted by your committee is definite in its intent, and your Committee is unable at this time to add anything which would provide further clarification.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. Robertson Ward, Chairman, presented the following report, dealing with amendments to the Constitution, which was duly adopted and the two amendments to Article 5, Section 1 were declared made to the Constitution while the amendments to Article 6 Sections 2 and 3 hold over until the next session:

The final matter for the consideration of your reference committee was the report of the Chairman of the Interim Committee on Constitution and By-Laws, Dr. Joseph McCarthy of Nebraska. I will reread this report and give the recommendations of the Committee on each item contained therein:

Your Interim Committee on Constitution and By-Laws presents the following amendments to the Constitution and By-Laws for your consideration.

AMENDMENTS TO CONSTITUTION

The following amendments to the Constitution were introduced at the Clinical Session of the House of Delegates Dec. 5-8, 1950, and are now submitted for your consideration:

Article 5, Section 1 (B): This section of article 5 has been re-edited. The intent has not been altered and your Committee recommends that this Section be considered during this meeting rather than held over for the next Clinical Session. The re-edited section reads as follows:

Associate membership in the American Medical Association shall be limited to those members of the constituent associations who are ineligible for active membership in the American Medical Association as defined in Article 5, Section 1 (A) and who hold the degree of Doctor of Medicine or Bachelor of Medicine subject to provisions of the By-Laws.

Your committee approves the above recommendation.

Article 5, Section 1: Add (C):

Your committee recommends adoption of this amendment to Article 5, Section 1 by the addition of "(C) A member shall retain his active or associate membership as long as he complies with the provisions of the Constitution and By-Laws and with the Principles of Medical Ethics of the American Medical Association."

Article 6, Section 2:

Your Interim Committee recommends that this Section of Article 6 be held over until the next session of the House of Delegates, inasmuch as an addition has been made by your committee which alters the intent as contained in the Section when read during the immediate past Clinical Session.

Since the Interim Committee made the change of adding the Assistant Secretary, and since you have just adopted the change involving the immediate five Past Presidents, the following change in the Constitution must lie over until the next Interim Session, and your reference committee so recommends:

The general officers, the Past Presidents of the Association (excluding the immediate past five), the General Manager, the Assistant Secretary, and the Editor of The Journal of the American Medical Association, the chairmen of the several standing committees, and two delegates elected by the Student American Medical Association shall be ex officio members of the House of Delegates, without the right to vote.

Article 6, Section 3:

Your Interim Committee has recommended that this Section of Article 6 be held over until the next meeting of the House of Delegates, inasmuch as an addition has been made by your committee which alters the intent as contained in the section when read during the last Clinical Session.

The number of delegates from the constituent associations shall be proportional to the number of active members of the American Medical Association in the respective constituent associations as provided in the By-Laws.

Your reference committee approves this action.

Dr. Ward then read the report of the committee on the proposed amendments to the By-Laws as follows, which was duly adopted:

Amendment to Division One, Chapter I: Your committee recommends adoption of the amendment to Division One, Chapter I, to read:

Members in good standing of the constituent associations of the American Medical Association are eligible for either active membership or associate membership in the American Medical Association, provided they possess the qualifications set forth in Article 5 of the Constitution and after they have been certified officially for enrolment by the secretaries of their constituent associations to the Secretary of the American Medical Association.

The last sentence of this Chapter as it reads at the present time, which pertains to the revision of the Constitution and By-Laws in 1947, is now obsolete and is recommended for deletion.

The reference committee approved the amendments to Division One, Chapter II, Section 2: Dues, to read:

Annual dues may be prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates. Each active member shall pay said annual dues to the constituent association for transmittal to the Secretary of the American Medical Association.

Dues will include subscription to The Journal of the American Medical Association.

The Board of Trustees may excuse a member from payment of dues for the following reasons, provided he is fully or partially excused from the payment of local dues by his component and constituent associations.

(A) Members on whom the payment of dues would work a financial hardship. This fact must be certified to by the secretary of the member's component society;

(B) Members retired from active practice;

(C) Interns and residents during the first five years following graduation, except that the time spent in the military service may be excluded in calculating the five-year limit;

(D) A member temporarily in the Armed Forces. Dues will be remitted and prorated January 1 or July 1 following the date of the member's entrance into military service.

(E) Members over 70 years of age may be excused, on request, from the payment of American Medical Association dues, regardless of local dues exemptions.

Your committee approves of the amendment to Division Two, Chapter VII, Section 1. Titles, which merely provides recognition of the newly created Section on Military Medicine. Amend so that paragraph 20 reads: "Military Medicine" and paragraph 21 "Miscellaneous Topics."

Your committee approves of the amendment to Division Three, Chapter IX, Section I. Delegates, to read:

"(A) Qualifications.—In order to be eligible for election to membership in the House of Delegates, a physician must have been (1) a member of the American Medical Association and a Member Fellow or (2) a Service Fellow of the Scientific Assembly for at least the two years immediately preceding the session of the House of Delegates in which he is to serve.

Your committee approves of the amendment to Division Three, Chapter IX, Section I (C) by the deletion of the words "dues paying" in the first sentence. This amendment is made so that there will not be conflict with Article 6, Section 3 of the Constitution, if adopted at the next session.

Division Three, Chapter IX, Section I (E)—Status After Seating:

Your reference committee recommends adoption of this amendment with addition of two words for clarification, without changing the sense or meaning of this section, so that it will read:

(E) Status After Seating.—A delegate whose credentials have been accepted by the Reference Committee on Credentials and whose name has been placed on the roll of the House shall remain a delegate until final adjournment of that session. If a delegate, once seated, is unable to be present on account of sickness or any other emergency, his place may be taken by his alternate if approved by the Credentials Committee. After the alternate has been seated he cannot be replaced.

The reference committee approves of the deletion of the word "Councils" from the title in Division Three, Chapter X, Section 4.

Your committee approves of the deletion of the words "the Secretary" in line 3, page 30, of Section 4 (B), Chapter X, Division Three, since the Secretary of the American Medical Association is an ex officio member of all standing committees.

Your committee approves of the amendment to Division Three, Chapter X, Section 5 (D) by the deletion of periods and the insertion of semicolons at the end of paragraphs (C), (E) and (F).

RECOMMENDATIONS

Your committee concurs with the decision of the Interim Committee on Constitution and By-Laws with respect to the resolution of the Rhode Island Medical Society at the Cleveland Clinical Session, as follows.

Your present reference committee approves the following definition of ex officio members as submitted by the Interim Committee:

Your interim committee has considered the recommendations of the reference committee regarding the voting rights of ex officio members of committees.

An ex officio member, according to Robert's Rules of Order (Revised) has the right to vote unless otherwise specifically prohibited.

It is the opinion of your committee that any organization has the right to determine whether or not an ex officio member of a committee has or has not the right to vote. This committee would point out that in the Constitution and By-Laws of the American Medical Association this practice has been observed.

The Reference Committee on Amendments to the Constitution and By-Laws at the Clinical Session in December recommended that the Interim Committee on Constitution and By-Laws "interpret and clarify" the term "executive session." Division Three, Chapter IX, Section 3 (C) (3) of the By-Laws reads as follows:

An executive session shall be limited to the members of the House of Delegates as defined in Article 6, Section 2, of the Constitution and By-Laws and to such administrative employees of this Association and of the House of Delegates necessary for the functioning of the House.

This section of the By-Laws as interpreted by your committee is definite in its intent and your committee is unable at this time to add anything which would provide further clarification.

With this, your present reference committee is in complete accord.

Supplementary Report of Board of Trustees Presenting Resolution on Civilian Control of Medical and Health Affairs

Dr. Louis H. Bauer, Chairman, Board of Trustees presented the following resolution from its Council on National Emergency Medical Service, which was referred to the Reference Committee on Emergency Medical Service:

Resolved, That the American Medical Association make clear and unequivocal its belief in the fundamental principle outlined in the National Security Act of 1947 that civil authority must ever govern and control the nation's means of its own defense; and in line with this fundamental principle of our democracy the Association commit its full power and influence to insure perpetuation of the policy established by the first Secretary of Defense, James Forrestal, and reaffirmed and supported in turn by Secretaries Louis Johnson and George C. Marshall to the end that civilian control in medical and health matters shall prevail at the Secretary's level in the Department of Defense through the continuance of the Armed Forces Medical Policy Council and through full authority vested in the civilian Chairman thereof as the Assistant to the Secretary of Defense for medical and health affairs in his office.

REPORT OF REFERENCE COMMITTEE ON EMERGENCY MEDICAL SERVICE

Dr. J. Arnold Bargen, Chairman, presented the following report, which was duly adopted:

Your reference committee approves this resolution with the following amendment:

Instead of the words "full authority vested in the civilian Chairman," which are contained in the last three lines, the words "such authority as is presently vested in the civilian Chairman," be substituted.

Supplementary Report of Board of Trustees on Recommendation on Universal Military Training Act

Dr. Louis H. Bauer, Chairman, submitted the following recommendation of its Council on National Emergency Medical Service, which was referred to the Reference Committee on Emergency Medical Service:

The Congress has passed a Universal Military Training Act. The implementation of this Act will involve substantial readjustments in medical services of the Armed Forces and may have a profound impact on all phases of American medicine. The American Medical Association is interested in the provision of adequate medical and health services for the Armed Forces, also for the civilian population.

This Act provides that a National Security Training Commission be appointed by the President for the purpose of submitting to the Congress within four months a plan for universal military training. In view of the complex and far-reaching medical implications of this Act, the Council on National Emergency Medical Service has recommended to the Board of Trustees that a study be conducted by the American Medical Association of the medical problems involved in the conduct of this universal military training program. The Board of Trustees has adopted this recommendation of the Council on National Emergency Medical Service, and a study will be undertaken immediately with the cooperation of interested groups.

REPORT OF REFERENCE COMMITTEE ON EMERGENCY MEDICAL SERVICE

Dr. J. Arnold Bargen, Chairman, presented the following report, which was duly adopted:

It is the opinion of your reference committee that in view of the urgency of the situation the committee felt that the resolution should be voted on, or the feeling of the House of Delegates expressed at this time.

Supplementary Report of Board of Trustees on Report on Veterans Administration Activities

Dr. Louis H. Bauer, Chairman, Board of Trustees submitted the following report which was referred to the Reference Committee on Emergency Medical Service:

The American Medical Association approves the principle whereby the existing specialist centers within the Veterans Administration are utilized for the care of military personnel so severely disabled that their return to active duty is unlikely.

Report of Reference Committee on Emergency Medical Service

Dr. J. Arnold Bargen, Chairman, presented the following report, which was duly adopted:

Your reference committee is in accord with the expressed statement of the Board of Trustees approving the principle of "what they plan to do."

Supplementary Report of Board of Trustees on Medical Relations in Workmen's Compensation

Dr. L. H. Bauer, Chairman, submitted the following report, which was referred to the Reference Committee on Industrial Health:

In compliance with instructions contained in the Resolution on Medical Relations in Workmen's Compensation passed by the House of Delegates at the 1950 San Francisco Session, the Council on Industrial Health has gotten in touch with the constituent state medical societies, the International Association of Industrial Accident Boards and Commissions, the American Association of Industrial Physicians and Surgeons and the American Academy of Compensation Medicine, with the following results:

1. Approximately 20% of the state medical societies have responded. A later report will be based on completed returns and on proposals discussed later in this report.

2. The International Association of Industrial Accident Boards and Commissions has submitted a list of principles as a basis for establishing better medical relations:

(*a*) There is need for more skilled medical and surgical care for injured workers without limitations of cost or other legal prohibition.

(*b*) The goal of medical care in compensation cases is the maximum reduction of permanent disability, maximum physical restoration and preparation of the injured worker for resumption of gainful employment. In this connection, it is suggested that the chosen physician in any case, though he may confer and refer the injured worker for special services, should continue in nominal charge and assume the responsibility for proper direction in rehabilitation procedure.

(*c*) Close association and cooperation between the compensation administrative agency and the state or local medical groups is essential to procure proper medical attention and to secure written reports and advice necessary for the administrative agency's case records.

(*d*) The trend for medical care in compensation is toward free initial choice of physician, as allowed under the rules promulgated by a given workmen's compensation agency. Further, there should be clear understanding that the direction of legal provisions for medical aid is a compensation administrative problem, and that such direction should be in the agency administering the compensation law, always with the benefit of advice and cooperation of medical groups.

(*e*) Organized undergraduate and graduate educational and training programs are needed for physicians in occupational medicine, traumatic surgery, physical medicine and rehabilitation.

If agreeable to the House of Delegates, the Council on Industrial Health submits this statement as a basis of study and will submit it to the state medical societies as a basis for cooperation with the applicable workmen's compensation authority.

3. The American Academy of Compensation Medicine has suggested:

(*a*) That the House of Delegates urge each state medical society to obtain and maintain complete data on compensation practice by the secretary's office or a special committee as indicated.

(*b*) That copies of this information be sent to the Council on Industrial Health.

(*c*) That these reports be studied by a competent person on the Council's staff with a view toward publication of pertinent findings.

(*d*) That field visits be undertaken to supplement the reports submitted from the states.

The Board of Trustees feels that these proposed principles require considerable further study before they are accepted as final and requests that they be referred back for such further study.

Report of Reference Committee on Industrial Health

Dr. C. E. Wertz, Temporary Chairman, submitted the following report, which was duly adopted:

Your Reference Committee on Industrial Health approves the supplementary report of the Board of Trustees on Medical Relations in Workmen's Compensation, including the principles enunciated therein. It recommends that these principles be used as a basis for further study as suggested by the Board of Trustees. In the course of this study, it is hoped that all of the constituent state associations rather than only the 20% recorded in the report will cooperate with the Board of Trustees.

Supplementary Report of Board of Trustees on Report of Committee on Blood Banks

Dr. L. W. Larson, Chairman, Committee on Blood Banks, presented the following report, which was referred to the Reference Committee on Emergency Medical Service:

In compliance with the action of the House of Delegates a year ago, the Board of Trustees authorized the Committee on Blood Banks to have prepared a brochure on starting and operating a blood bank and a second survey of blood banks. The former, Bulletin 82 of the Bureau of Medical Economic Research, was mailed a few weeks ago to the officers of the Association, the members of the House of Delegates, and to state and county medical societies.

Bulletin 83 of the Bureau of Medical Economic Research, entitled "Second Survey of Blood Banks," is now being distributed to the members of the House. Appendix A of our Committee report today is inserted in Bulletin 83; it provides a brief summary of Bulletins 82 and 83. The preparation of Bulletin 83 is the work of Frank G. Dickinson, Ph.D., Everett L. Welker, Ph.D., and several other members of the staff of the Bureau of Medical Economic Research. The Committee desires to thank the Council on Medical Education and Hospitals for including five questions on blood used and procured in hospitals in its Annual Census of Hospitals for 1950.

The "Second Survey of Blood Banks" clearly establishes that three million units of whole blood were used annually, prior to the Korean conflict, in hospitals for the treatment of patients. Of the three million units, 70% was procured in hospitals, 13% in nonhospital blood banks, and the remaining 17% in Red Cross regional blood centers. The amount of blood procured monthly has, of course, increased rapidly since the start of the Korean conflict.

The Committee reaffirms its belief, which was stated in its report to the House at the 1950 Cleveland Session, that mass blood grouping is inadvisable. The major problem is procurement of blood. This major problem should have general priority over any fringe projects because they divert funds and public attention from the major need. To stimulate procurement, the Committee urges every physician and the members of his family who are acceptable donors to give blood for military and civilian defense purposes through the Red Cross or local blood banks as the latter become affiliated with the national blood program.

The Committee reemphasizes the importance of a committee on blood banks being developed in each state as recommended at the Cleveland Session. It believes that the personnel of the state committees should include representatives of the state medical association, the state pathological society, the state hospital association, the state health department, the Red Cross and the other blood banks located in the state. The state committee should, in addition to other duties, concern itself with developing good working relationships between all types of blood banks in the state. Controversies and difficulties in these relationships should be settled at the local and state level; and those incapable of such adjustment may be referred to the

Committee on Blood Banks of the American Medical Association. It would be the general responsibility of the state committee to assure the smooth operation of the blood program in its state. Specifically may be mentioned the opportunity of the state committee to facilitate the establishment of contracts between qualified blood banks and the National Emergency Blood Program; the allocation of blood for civilian, military and civilian defense uses; the arrangement for limited local storage of plasma, and the increase of blood bank inventories of standard collection sets, bottles and administration sets. In event of an attack in any state, the state committee would immediately function under the direction of the state civilian defense administrator.

As regards the Department of Defense and the Civilian Defense Administration, the attention of the House is redirected for emphasis to the statements made in the Supplementary Report of the Committee to the House at the Cleveland Session. Supplies of whole blood and of blood for fractionation are continuing to flow to the Armed Forces in steadily increasing amounts; the amounts necessary for the fiscal year 1952 will probably be double or triple our current rate.

It is regrettable that the Congress has not yet made available the necessary funds for the development of dispersed federal reserve supplies of plasma for civilian defense and of equipment for collecting and administering blood and plasma.

The American National Red Cross Blood Program now has the following 41 *regional* centers:

Eastern
Buffalo, N. Y.
Burlington, Vt.
Columbus, Ohio
Hartford, Conn.
Ft. Wayne, Ind.
Huntington, W. Va.
Johnstown, Pa.
Louisville, Ky.
Wilkes-Barre, Pa.
Roanoke, Va.
Philadelphia, Pa.
New York, N. Y.
Boston, Mass.
Rochester, N. Y.
Syracuse, N. Y.
Norfolk, Va.
Washington, D. C.

Midwestern
Detroit, Mich.
Lansing, Mich.
Madison, Wis.
Omaha, Neb.
Peoria, Ill.
St. Paul, Minn.
Springfield, Mo.
Wichita, Kan.
St. Louis, Mo.

Pacific
Boise, Idaho
Great Falls, Mont.
Los Angeles, Calif.
Portland, Ore.
Stockton, Calif.
San Jose, Calif.
Tucson, Ariz.
Yakima, Wash.

Southeastern
Asheville, N. C.
Atlanta, Ga.
Charlotte, N. C.
Mobile, Ala.
Nashville, Tenn.
Savannah, Ga.
Columbia, S. C.

The following 7 regional centers may be in operation by July 1952:

Schenectady, N. Y.
New Orleans, La.
Birmingham, Ala.
Houston, Texas
Waco, Texas
Salt Lake City, Utah
Cleveland, Ohio

Three special defense centers are now in operation in:

Kansas City, Mo.
Indianapolis, Ind.
Chicago, Ill.

By September 1 six more defense centers will be opened in:

Baltimore, Md.
Des Moines, Iowa
Fort Worth, Texas
Oklahoma City, Okla.
Jackson, Miss.
Shreveport, La.

By July 1, 1952, four defense centers are planned for:

Cincinnati, Ohio
Pittsburgh, Pa.
Little Rock, Ark.
Memphis, Tenn.

It is the understanding of the Committee that additional centers of either kind are not now contemplated by the Red Cross. Moreover, Red Cross officials have expressed the hope that many more non-Red Cross centers will be developed.

The Committee has continued to cooperate with the National Blood Program notwithstanding the several reorganizations and attempted reorganizations within the American National Red Cross.

Cordial relationships have been established between the Committee on Blood Banks and the new Director of the American National Red Cross Blood Program, Dr. David N. W. Grant, former Air Surgeon of the U. S. Air Force.

The Committee is aware of the continuing problem of donor procurement. In some quarters physicians using blood from Red Cross regional centers are not assuming their responsibility for securing replacement from families and friends. (See Report of the Committee on Blood Banks, San Francisco, June 1950.)

From the above the following specific recommendations are summarized.

1. That physicians and their families be urged to participate as donors for defense and civilian defense purposes.
2. That there continue to be developed state blood committees performing the functions above outlined.
3. That Congress be reminded of the urgent need for appropriations for reasonable federal stores of plasma and equipment for civilian defense.
4. That physicians using blood recognize their responsibility in replacement from families and friends of patients.

REPORT OF REFERENCE COMMITTEE ON EMERGENCY MEDICAL SERVICE

Dr. J. Arnold Bargen, Chairman, presented the following report, which was duly adopted:

The discussion on blood banks concerns itself largely with the method of procurement of blood. Your Reference Committee approves the report of the Committee on Blood Banks.

Report of Committee on Chronic Diseases

Dr. Robertson Ward, Chairman, presented the following report, which was referred to the Reference Committee on Hygiene and Public Health:

At the last meeting of the House of Delegates of the American Medical Association in Cleveland, the problem of alcoholism was referred to our Committee, whereupon it was decided that the problem could best be handled by appointing a subcommittee to deal with the subject. Dr. Milton G. Potter, of Buffalo, N. Y., was designated chairman of the subcommittee and nominated seven other physicians with knowledge and interest in the field of alcoholism representing various geographical areas. All of those nominated were appointed and have accepted their assignments and have participated in the planning of a nationwide program.

Although time and space do not permit that we inform the House of details, the program envisages efforts to stimulate the formation of a physicians' committee in each state to coordinate the activities of state medical societies, to encourage constructive legislation, to cooperate with interested nonmedical groups, to encourage general hospitals to accept and treat acute alcoholism and to stimulate presentation of formal courses in schools of medicine, nursing, social work, law and others. It is also the plan of the subcommittee to cooperate with the Commission on Chronic Illness and to report to the House of Delegates through our Committee.

The chairman of the subcommittee believes that surveys of the problem of alcoholism will soon yield information that will require careful analysis. He advocates that the American Medical Association sponsor a meeting of all national organizations interested in the problem of alcoholism, such as the National Committee on Alcoholism and the Council on Research on Alcoholism of the National Research Council.

Your Committee has kept in touch with activities of the United States Public Health Service in the field of chronic diseases. This has been accomplished largely by conferences with Dr. Robert J. Anderson.

In January of this year the Division of Chronic Disease and the Division of Tuberculosis of the United States Public Health Service were merged as the Division of Chronic Disease and Tuberculosis, with Dr. Anderson as chief.

This new Division is divided into three main sections. The first of these is Field Research, mainly concerned with tuberculosis. It is the epidemiological branch which is interested, for example, in the study of the evolution of tuberculosis in communities, the evaluation of the use of B. C. G. vaccine, the evaluation of treatment methods for tuberculosis (a study entailing cooperative effort by about 70 investigators scattered throughout the United States) and the evaluation of diagnostic methods in tuberculosis.

The second section is for state aid and is also in the tuberculosis field mainly. This section works only with programs that are of established value. Among other functions, it provides consultative services of physicians, nurses, social workers, educators and experts in case registry methods. The section also provides facilities for screening populations by chest roentgenographic studies.

The third section, Program Development, takes over most of the work of the old Chronic Disease Division and is subdivided very much like the old Division into branches for program analysis, heart disease control, rehabilitation, home care and diabetes control. Activities in this section are expected to undergo transferral into one of the other sections, depending on advancement of work in any phase to a point that such transferral is desirable.

Of particular interest to the House is the fact that the present program of the Division of Chronic Disease and Tuberculosis places more emphasis on the evaluation of multiphasic screening technics than on the use of such technics as though their value were already known.

Your Committee had hoped to present an analysis of the budget of the Federal Security Administration for the purpose of appraisal of the magnitude of total federal expenditures in the field of chronic diseases. Because of circumstances outside our control, this portion of our report must be postponed until the next session of the House of Delegates.

Your Committee believes that it has a definite function to perform in stimulating the formation of chronic disease committees in state and local medical societies. In cooperation with the Commission on Chronic Illness we hope to furnish guidance to such local committees in the development of sound plans for the management of chronic diseases. It is also our hope to be able soon to develop and submit to the House a proposed basic policy in the matter of chronic diseases or any extension of public health function.

REPORT OF REFERENCE COMMITTEE ON HYGIENE AND PUBLIC HEALTH

Dr. Louis M. Orr, Chairman, presented the following report, which was duly adopted:

Your committee next reviewed very carefully the report of the Committee on Chronic Diseases and was of the unanimous opinion that the timeliness and all-inclusiveness of this report should receive the whole-hearted approval and enthusiastic support of this House of Delegates.

It is agreed that this committee has a definite function to perform in stimulating the formation of chronic disease committees in state and local medical societies. It is further hoped that cooperation with the Commission on Chronic Illness will be attained in order that sound guidance may be given to such local committees in the development of realistic plans for the management of chronic diseases.

Report of Reference Committee on Rules and Order of Business

Dr. Walter E. Vest, Chairman, presented the following report, which was duly adopted:

Your Reference Committee on Rules and Order of Business recommends that the House recess at 12:30 p. m. and meet again at 1:30 p. m. today. It recommends also that the committees which have further work to do meet immediately after the adjournment of the afternoon session.

Resolution on Stamps of Approval for Iodized Salt Packages

Dr. William A. Hyland, Michigan, presented the following resolution, which was referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, Endemic goiter is common in many sections of the United States; and

WHEREAS, It has been demonstrated that the use of iodized salt is a good preventive of endemic goiter; therefore be it

Resolved, That the House of Delegates of the American Medical Association instruct the Council on Pharmacy and Chemistry to prepare a stamp of approval by the American Medical Association which the salt manufacturers may use on their iodized salt packages to increase the sale of the same.

REPORT OF REFERENCE COMMITTEE ON HYGIENE AND PUBLIC HEALTH

Dr. Louis M. Orr, Chairman, presented the following report, which was duly adopted:

Your committee is fully aware of the merits of iodized salt for use in certain conditions. It is also cognizant of certain objections to its general use in all sections of the country.

Your committee, therefore, recommends that no action on this matter be taken by the House at this time and that this resolution be referred to the Council on Foods and Nutrition for study and that recommendations by the Council be submitted at the next session of the House of Delegates.

Resolution on Services of Whitaker and Baxter

Dr. George S. Klump, Pennsylvania, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, At the suggestion of Whitaker and Baxter the National Education Campaign will be terminated at the end of 1951; and

WHEREAS, The conclusion of this campaign implies that the services of Whitaker and Baxter will be discontinued at the same time; and

WHEREAS, The services of Whitaker and Baxter have been most effective in promoting the principles of free enterprise; therefore be it

Resolved, That the House of Delegates of the American Medical Association recommends to the Board of Trustees that the services of Whitaker and Baxter be retained in a consultive capacity.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. L. G. Christian, Chairman, presented the following report, which was duly adopted:

The resolution introduced by Dr. George S. Klump has been amended with his approval, and your reference committee recommends approval of it to read as follows:

WHEREAS, At the suggestion of Whitaker and Baxter, the National Education Campaign will be terminated at the end of 1951; and

WHEREAS, The conclusion of this campaign implies that the services of Whitaker and Baxter will be discontinued at the same time; and

WHEREAS, The services of Whitaker and Baxter have been most effective in promoting the principles of free enterprise; therefore be it

Resolved, That the House of Delegates of the American Medical Association express appreciation to Whitaker and Baxter for their excellent campaign in the educational program of the American Medical Association, and hope that their services will be available in case of future need, as deemed necessary by the Board of Trustees.

Gift from Woman's Auxiliary

Dr. Elmer L. Henderson, Past President, reported as follows:

Mr. Speaker and Members of the House of Delegates: I think this is a very important announcement. Each year some of your officers are invited over to have lunch with the Auxiliary. Today I was introduced to the Auxiliary by the President, and she held me down for a minute until the immediate past president got up and presented me with a check for $10,000 to the American Medical Education Foundation.

I don't know whether you realize it, but up until two years ago they only paid 25 cents a year dues. Two years ago their dues were raised to $1. I don't know how they accumulated $10,000, but that certainly does show a wonderful spirit of cooperation.

A motion of thanks was made simultaneously by several delegates, was seconded, and was carried by a spontaneous rising vote, and the Speaker requested the Secretary to see to it that that vote of thanks was telephoned to the women while they were in session.

Resolution on Appointment of Reference Committees

Dr. A. F. R. Andresen, New York, presented the following resolution, which was referred to the Reference Committee on Amendments to Constitution and By-Laws:

WHEREAS, We have observed during this session the really remarkable job done by our Reference Committee on Miscellaneous Business with the fifteen resolutions referred to it; and

WHEREAS, This committee worked an entire day and into the night adequately to give consideration to all of the resolutions submitted to it, while some committees had little or nothing to do; and

WHEREAS, A new Reference Committee on Military Affairs was created at this meeting; therefore be it

Resolved, That the House of Delegates request the Speaker to appoint a committee, including, preferably, at least one previous chairman of the Reference Committee on Miscellaneous Business, to investigate and to make recommendations regarding the desirability of either providing for additional Reference Committees on Miscellaneous Business, which could be designated by "A," "B" and "C"; to create new reference committees to relieve the excessive burden on the present lone Reference Committee on Miscellaneous Business, or to consider a reapportionment of all of the reference committees.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO CONSTITUTION AND BY-LAWS

Dr. Robertson Ward, Chairman, presented the following report, which was duly adopted:

This resolution suggested that because of the multiplicity of measures assigned to the Reference Committee on Miscellaneous Business at this session, additional committees be created to handle miscellaneous business, a committee to help the Speaker assign topics, or a reapportionment of all reference committees be carried out.

Your reference committee recommends that this resolution be not adopted, because the proposals suggested would lead to confusion and detract from the power of the Speaker to assign topics, and because the present assignment of many resolutions to the Reference Committee on Miscellaneous Business is an occasional circumstance which might happen to any reference committee.

Introduction of Dr. E. P. Montgomery

Dr. F. F. Borzell, Speaker, introduced Dr. E. P. Montgomery, Quincy, Illinois, a ninety-three year old practicing physician, and the House applauded.

Telegram to Dr. Henry R. Viets

On motion duly made, seconded and carried, the Secretary was requested to send a telegram to Dr. Henry R. Viets, Chairman of the Council on Scientific Assembly, expressing the good wishes of the House of Delegates for his early recovery.

Telegram to Dr. T. C. Routley

The House received a telegram of good wishes from Dr. T. C. Routley, Secretary of the Canadian Medical Association, and on motion, duly made, seconded and carried, the Secretary was instructed to send a telegram to Dr. Routley, stating that the members of the House of Delegates have missed his friendly presence and wishing him speedy and complete recovery.

Supplementary Report of Board of Trustees

1952 DUES

Dr. Dwight H. Murray, Board of Trustees, presented the following report, which was duly adopted:

The Board of Trustees recommends that the 1952 dues of the American Medical Association be $25. This includes subscription to THE JOURNAL.

PHYSICIANS PLACEMENT SERVICE

Dr. Dwight H. Murray, Board of Trustees, presented the following report, which was adopted without referral:

The American Medical Association has for many years recognized the need for a more equitable distribution of physicians in the United States. In an effort to meet this need, its Council on Medical Service has conducted a Physician Placement Service through which many communities have been assisted in obtaining the services of a physician.

The Board of Trustees believes that there is a definite need for expanding the Association's activities in this field and in providing the leadership to develop further the physicians placement services in the state medical societies, as follows: (1) the organization and implementation of an effective physician placement service in every state; (2) expansion of the present program of the American Medical Association's Physician Placement Service; (3) conducting a national conference on physician placement if found advisable, and (4) design plans for financial assistance to physicians in setting up a practice.

The Board will give support to this program by financing it to the degree demonstrated to be necessary.

LETTER RE DEFERMENTS OF STUDENTS

Dr. Dwight H. Murray, Board of Trustees, presented the following report, and the House duly approved the letter:

The Board of Trustees has authorized that the following letter be sent to Dr. Howard Rusk, Chairman of the Health Resources Advisory Committee in the Office of Defense Mobilization:

The Board of Trustees of the American Medical Association is concerned that the extremely broad provisions for deferments under Section 6 (h) of Title I of the Selective Service Act of 1948, as recently amended by the enactment of Senate Bill 1 by the 82d Congress, will jeopardize acceptance of the necessary deferment of undergraduate and graduate medical students by the local boards of the Selective Service System.

The Board of Trustees urges that your committee recommend to the President and, if appropriate to the Congress, that deferments under this section be limited to persons in those categories for which a need in the armed forces or a shortage in the civilian economy have been specifically established.

PLACE OF 1954 CLINICAL SESSION

Dr. Dwight H. Murray, Board of Trustees, presented the following report, which was declared a responsibility of the Board of Trustees:

The Board of Trustees has selected *Miami, Florida*, as the place for the 1954 Clinical Session of the American Medical Association.

Statement of Speaker

Dr. F. F. Borzell, Speaker, submitted the following statement:

We will now proceed with the regular business of the House, but before we proceed the Speaker is pleased to announce that the Board of Trustees acceded to the expressed wish of the House of Delegates this morning that Whitaker and Baxter be retained. It is understood, of course, that at the conclusion of this year their functions will be directed as previously by the Coordinating Committee and the Board of Trustees to whatever extent the exigencies at that time would indicate.

The Board has also announced that because of the fact of the continuing activity of Whitaker and Baxter they felt it inadvisable to make any changes in the personnel of the Coordinating Committee and therefore by action of the Board the Coordinating Committee personnel will remain the same, including the Chairman, Dr. Henderson, who has very graciously agreed to continue as Chairman of the Coordinating Committee. In other words, he has not expired.

Roll Call

The Secretary called the roll, there being more than a quorum answering.

Election of Officers

The following officers were elected to vacancies:

President-Elect: Dr. Louis H. Bauer, Hempstead, L. I., N. Y.

Vice President: Dr. Oscar B. Hunter, Washington, D. C.

Secretary: Dr. George F. Lull, Chicago.

Treasurer: Dr. J. J. Moore, Chicago.

Speaker, House of Delegates: Dr. F. F. Borzell, Philadelphia.

Vice Speaker, House of Delegates: Dr. James R. Reuling, Bayside, N. Y.

Member, Board of Trustees, to succeed Dr. Walter B. Martin for term ending in 1956: Dr. Walter B. Martin, Norfolk, Va.

Member, Board of Trustees, to succeed Dr. Louis H. Bauer, elected as President-Elect, for a term ending in 1954: Dr. David B. Allman, Atlantic City, N. J.

Committee on Distinguished Service Award appointed by President John W. Cline: Dr. H. Gordon MacLean, Oakland, Calif.; Dr. James S. Stevenson, Tulsa, Okla.; Dr. James M. Faulkner, Boston.

Member, Judicial Council, to succeed Dr. Walter F. Donaldson for a term ending in 1956, nominated by Dr. John W. Cline, President: Dr. Walter F. Donaldson, Pittsburgh, Pa.

Member, Council on Scientific Assembly, nominated by Board of Trustees, to succeed Dr. Samuel P. Newman for a term ending in 1958: Dr. Samuel P. Newman, Denver.

Member, Council on Medical Education and Hospitals, nominated by Board of Trustees, to succeed Dr. W. S. Middleton, who did not wish reelection, for a term ending in 1958: Dr. Franklin D. Murphy, Kansas City, Kan.

Member, Council on Medical Service, nominated by Board of Trustees, to succeed Dr. H. B. Mulholland for a term ending in 1954: Dr. H. B. Mulholland, Charlottesville, Va.

Member, Council on Medical Service, nominated by Board of Trustees, to succeed Dr. Joseph D. McCarthy for a term ending in 1954: Dr. Joseph D. McCarthy, Omaha.

Members of Permanent Committee on Constitution and By-Laws, nominated by Board of Trustees: Dr. James S. Stevenson, Tulsa, Okla., for a term expiring in 1952; Dr. Stanley H. Osborn, Hartford, Conn., for a term expiring in 1953; Dr. Floyd S. Winslow, Rochester, N. Y., for a term expiring in 1954; Dr. B. E. Pickett Sr., Carrizo Springs, Texas, for a term expiring in 1955; Dr. Louis A. Buie, Rochester, Minn., for a term expiring in 1956; the President, the Secretary, the Assistant Secretary, Dr. E. S. Hamilton, Kankakee, Ill., as the member of the Board of Trustees, the Speaker and the Vice Speaker of the House of Delegates, all ex officio members without the right to vote.

Election as Affiliate Fellows:

On nomination of Judicial Council: Dr. David P. Duffie, Juliaca, Peru, S. A.; Dr. Dunbar Wallace Smith, Los Angeles, Calif.

On nomination of Section on Internal Medicine: Dr. William H. Daughaday, St. Louis.

On nomination of Section on Preventive and Industrial Medicine and Public Health: Dr. Howard Stanley Hoyman, Urbana, Ill.

Election as Associate Fellows:

On nomination of Council on Scientific Assembly: The Secretary presented the names of 490 physicians and the House elected them to Associate Fellowship.

Address of President-Elect Louis H. Bauer

The newly elected President-Elect, Louis H. Bauer, was led to the platform and presented the following address:

Mr. Speaker, Members of the House of Delegates:

It is difficult to express my feelings at this time. One would, indeed, be less than human, if he did not feel considerable emotion at being chosen President of the greatest medical association in the world. There is no higher honor that can come to a physician.

I realize that it is not only an honor but that it carries with it arduous duties and tremendous responsibilities. These, I am prepared to accept.

We have passed through a trying period. For the time being we have averted the greatest threat against the freedom of medicine. The fight, however, is not won and we cannot relax. All we have gained is a breathing space. The world is watching to see what we will do with this breathing space. If we sit back and do nothing, we shall have lost our last opportunity.

Now is the time for constructive action. Our voluntary insurance program has made tremendous strides but it is not yet the complete answer. It must be expanded to fill the gaps in coverage which still exist. The whole profession must be brought enthusiastically behind the program. There are still many physicians who do not cooperate in its expansion.

During the past two and a half years we have aroused many of our members from a state of apathy, but there are still many who evince little interest either in the welfare of the profession or the public.

Our Association has been bitterly attacked both from without and from within. Many doctors and many laymen have little idea of what the American Medical Association is or stands for. The blame for this is, perhaps, our own. We have too long delayed in coming close to our individual members and the public. This situation must be remedied and promptly.

Conditions have changed in the past quarter of a century. Doctors and medical societies can no longer be purely scientific in their viewpoints. They must have an interest in the economics of medicine and in the methods of distribution of medical care. They must find out the needs of the people and anticipate them. Both individual doctors and medical societies should be leaders, broad-minded and forward-thinking. Medicine is humanitarian and the needs of the public must come first. There is no room in medicine for the selfish doctor who thinks only of himself and his income.

We must be leaders in the development of community health councils. We must further expand our grievance committees which have been growing rapidly. Panels of physicians must be available everywhere to cover night, holiday and emergency calls. Nothing irritates a citizen more than being unable to obtain a doctor when he needs one. We must assist in the training of auxiliary and technical personnel of which there is a great shortage.

Medical education must be financially supported. We have made an excellent start, but our goal is not yet even in sight. Additional finances are absolutely essential if our medical schools are to maintain their high standards. This support can come from only two sources, private enterprise or government.

The American Medical Association has been long and bitterly attacked because, except for a one-time grant for so-called bricks and mortar, it has strongly opposed Federal aid to medical education. Our stand, however, has now received strong support from the Commission on Financing Higher Education.

The challenge has been made. We have picked up the gauntlet. Now we must make good and we can if every doctor will do his part. Otherwise we face possible ruination of our medical schools.

The American Medical Association early insisted on a program for civil defense and doctors have been in the forefront in the development of this program. The public, however, is apathetic and we can be of great aid in arousing the public to the dangers of possible atomic warfare. Protection against that is everybody's business, not just that of the military and the medical profession.

I am confident that our new program for the public relations of the Association will be productive of much good.

We are moving forward, but it has taken a long time to arouse medicine. Finally the sleeping giant is awakening and our motto, henceforth, must be "Constructive Leadership." I am determined to do all I can to make this motto more than a mere "catchword."

I thank you, more than I can express, for the honor you have conferred on me and for the confidence you have again placed in me. For eight years you have given me positions of responsibility and trust. I have given the best I could to these positions. I pledge to you that I will continue to give you the best I have in me. At this time I wish to pay tribute to my associates on the Board of Trustees. The membership has steadily changed but I wish to tell you that I have never met a group of men more earnest in their endeavors, or more unselfish in their efforts to further the cause of medicine and improve the health of the public than those with whom I have been associated closely for the past seven years. I am proud to have been one of them.

I feel very humble when I recall those who have preceded me in this office. A year from now, when I take up the torch from the hands of Dr. Cline, I hope I can keep it flaming as brightly as have my predecessors. Again, thank you, and God willing, I will not let you down.

Report on American Medical Education Fund

Dr. Elmer L. Henderson, President, American Medical Education Foundation, presented the following report:

Gentlemen, it is needless for me to say that I am delighted at the action of the Board of Trustees, at the request of this House of Delegates, that Whitaker and Baxter be retained. I can't say that I am so delighted about the continuation of the Coordinating Committee as it is at present made up. However, I have never been called on by the profession to do a job that I have not attempted to do the best that I can, and so long as I am Chairman of the Coordinating Committee I promise you that there is not going to be any let up in the fight against compulsory health insurance.

I want just to give you a few words of warning. Our battle is not won, and I hope that no state will feel that the battle is won and that we should give up our educational committees in the various states or that they should let up in any way.

Until after the election in 1952, we cannot afford to take any chances. We have got to be on guard every minute. The forces that are working today and that were working two and a half years ago for compulsory health insurance and for socialized medicine I may say are just as active today as they were then. I was warned in Washington last week by those men who know that they are even more active than they were a few years ago. I just wanted to give you that note of warning.

In regard to the American Medical Education Foundation Fund for aid to medical schools, you know I announced here in this House of Delegates yesterday and showed you a check that I received from the Auxiliary of the American Medical

Association for $10,000. The California Medical Association voted $100,000 to that fund some weeks ago. South Carolina voted $10,000 to the fund.

At a recent meeting of the Medical Society of the State of New York they decided that they were going to undertake to raise $250,000 for this fund.

Now, gentlemen, if we are going to maintain the American way of life, if we are going to defeat socialism in this country, if we are going to defeat socialized medicine, this is a job that we have to do, and it can be done.

Think what it would mean if every doctor in this country would agree to give this fund $100 a year. Think how much money that would mean. That alone would go a long way to solve the problem of the medical schools in this country. Not only that, it would encourage the National Fund really to get out and do a job with industry.

As I told you the other day in my talk, we have joined up in a way with the National Fund of which Former President Hoover is the Honorary Chairman. We had a most enthusiastic meeting in New York on May 16, last month. We of the American Medical Association who were there were very much surprised at the enthusiasm in this meeting. We did not know that they had gone as far as they had toward getting the support of industry, and I believe we are going to be able to do a job, but we are only going to be able to do that job provided the medical profession does its part. Not only should individual doctors throughout this country contribute to this fund, but every state society, every medical organization in this country. You remember the other morning we received a check for $2,000 from the American College of Radiology, and we have received some other donations from smaller organizations. That is the way we can solve one of the problems of socialism in this country, and I hope that each and every one of you will go back to your state and go to work on this education fund and see if we can't really raise a substantial amount.

We have had a number of checks for $200, $250, quite a few for $500, quite a few for $1,000, from individual doctors. We realize that every doctor could not afford to give a large contribution, but if you can't give $100, can't give $50, if you can give $10 it will go a long way toward bringing this fund to a point where it will do a job. I hope that each and every one of you will become interested in this. I hope that each and every one of you will contribute to it personally and go back to your states and work for it. Thank you.

Presentation of Purse to Miss Hattie Niehoff

The Speaker, Dr. F. F. Borzell, addressed the House as follows:

I now have a task to perform which in many ways is an extremely pleasant task, but it is definitely tinged with sincere regret that it is necessary to perform it. I am going to ask Dr. Reuling to assist me. I wish Dr. Reuling would conduct our most efficient and long serving, faithful servant, our chief clerk, *Miss Hattie Niehoff*, to the platform.

Members of the House of Delegates, it is, as I said, with mixed emotions that I announce to you that this is the concluding session that Hattie Niehoff will serve us as she has served us for twenty-seven years in this House and thirty-seven years as a member of the staff of the American Medical Association.

I need not tell you how well Miss Niehoff has served. I need not tell you that the efficiency that has been demonstrated in the management of the affairs of the House of Delegates is in the main due to the hard work that she does prior to the sessions and during the sessions to see to it that we are not only made comfortable but that the machinery is well greased and that things go along smoothly.

I hold in my hand a scroll. That scroll says, "To Miss Hattie A. Niehoff from the Members of the House of Delegates of the American Medical Association, June 14, 1951: This token of our esteem from the members of the House of Delegates is far too small a way to measure our regret at losing your valuable services, kindly advice and sincere loyalty. May the remainder of your life afford you the same happiness that you have given us for the last 37 years."

This scroll contains the names of many of your friends, Hattie, and as a small token of our appreciation and also to provide you with perhaps the means by which you may come back and visit us occasionally we present you this purse.

Miss Niehoff replied: I thank all of you sincerely. I think you know it is almost impossible for me to say anything to express myself except that my work for you has been a pleasure from the time I started. I wouldn't have had it otherwise and I would not have wanted to work with any other group than this one. Thank you.

Vote of Thanks to Atlantic City

A rising vote of thanks was extended to Atlantic City, to Dr. David Allman and to Mr. Harold Baggs for the wonderful reception extended to the delegates and others attending the session.

The House adjourned sine die at 3:05 p. m.

REGISTRATION AT THE ATLANTIC CITY SESSION, JUNE 11-15, 1951

Alabama	78
Alaska	1
Arizona	32
Arkansas	28
California	334
Canal Zone	4
Colorado	57
Connecticut	233
Delaware	125
District of Columbia	424
Florida	168
Georgia	77
Hawaii	20
Idaho	6
Illinois	464
Indiana	143
Iowa	68
Kansas	40
Kentucky	90
Louisiana	48
Maine	21
Maryland	384
Massachusetts	383
Michigan	231
Minnesota	128
Mississippi	28
Missouri	128
Montana	8
Nebraska	50
Nevada	10
New Hampshire	20
New Jersey	1,628
New Mexico	13
New York	2,280
North Carolina	146
North Dakota	11
Ohio	468
Oklahoma	31
Oregon	21
Pennsylvania	2,779
Puerto Rico	30
Rhode Island	62
South Carolina	26
South Dakota	14
Tennessee	78
Texas	128
Utah	22
Vermont	30
Virginia	184
Washington	54
West Virginia	68
Wisconsin	89
Wyoming	4
Other Countries	233
Anglo Egyptian Sudan	1
Australia	1
Bermuda	1
Canada	79
Central America	2
China	7
Cuba	43
Dutch West Indies	1
Egypt	2
England	1
France	2
Germany	8
Greece	2
Guam	1
Haiti	2
Holland	2
Hongkong	1
India	2
Indo China	1
Iran	2
Israel	4
Italy	1
Japan	4
Korea	2
Liberia	1
Mexico	3
Pakistan	1
Philippine Islands	4
Scotland	2
Siam	2
South America	33
Spain	2
Switzerland	5
Thailand	4
Turkey	1
West Indies	2
Total	12,229

REGISTRATION BY SECTIONS

Anesthesiology	270
Dermatology and Syphilology	313
Diseases of the Chest	355
Experimental Medicine and Therapeutics	87
Gastro-Enterology and Proctology	405
General Practice	1,837
Internal Medicine	2,167
Laryngology, Otology and Rhinology	351
Nervous and Mental Diseases	351
Obstetrics and Gynecology	612
Ophthalmology	496
Orthopedic Surgery	325
Pathology and Physiology	235
Pediatrics	543
Physical Medicine and Rehabilitation	105
Preventive and Industrial Medicine and Public Health	236
Radiology	445
Surgery, General and Abdominal	1,369
Urology and Miscellaneous Topics	240
Sessions on Military Medicine	76
Sessions on Allergy	85
More than one Section or no Section checked	1,326
Total	12,229

MEDICAL NEWS

ARKANSAS

State Medical Election.—The Arkansas Medical Society at its recent annual meeting installed Dr. Charles R. Henry, Little Rock, as president and elected Dr. Sherod A. Drennen, Stuttgart, president-elect; Dr. Daniel H. Autry, Little Rock, treasurer, and Dr. William R. Brooksher, Fort Smith, secretary.

CALIFORNIA

Appoint Head of Urology Department.—Dr. Willard E. Goodwin, Baltimore, has been appointed chief of the department of urology and assistant professor of surgery at the new University of California at Los Angeles School of Medicine, to be opened this fall. Dr. Goodwin has been a resident urologist at Johns Hopkins University.

Personal.—Dr. Portia Bell Hume, director of the Berkeley State Mental Hygiene Clinic and assistant professor of psychiatry at the University of California Medical School, has been appointed a deputy director of the state department of mental hygiene. She will head the programs of the seven outpatient mental hygiene clinics maintained by the state.

COLORADO

First Board of Health for Denver.—The citizens of the City of Denver have amended their city charter to provide for the establishment of a department of health and hospitals. It further makes provision for a regulatory board to govern the affairs of this new department. This board conforms, in general, to the structure of the State of Colorado Health Laws as they were revised in 1947 by the Sabin Health Act. Thus, for the first time in its 75-year history Denver has an official board of health. Dr. James P. Dixon has been selected to direct the activities of the new department.

DISTRICT OF COLUMBIA

Program for Training Practical Nurses.—A practical nurse training program has been approved by George Washington University and the District of Columbia public school system. The first group of practical nurse students under this agreement began hospital training at the George Washington University Hospital June 4. This new practical nurse training opportunity has been developed to help relieve the nursing shortage in this area. The program will make Anna Burdick Vocational High School graduates eligible for civil service appointments in government hospitals as well as supply graduate practical nurses to private hospitals in this area. Under the program students may train for 17 weeks at Burdick Vocational High School, where they receive instruction in bacteriology, sanitation, hygiene, anatomy, chemistry, foods and nutrition, physiology, diseases, and record-keeping. They also are acquainted with general health needs, care of the convalescent and mildly ill, care of long-term illnesses, mothers and newborn infants, first aid, and emergency needs. Training at the hospital includes 32 weeks of medical nursing (280 hours), surgical nursing (280 hours), obstetrical and nursery nursing (240 hours), pediatric nursing (160 hours), evening and night services (120 hours), dietetics (80 hours), and urology (120 hours). The university will provide a stipend of $25 a month to each student while she is in training at the hospital.

FLORIDA

Public Health Workers' Academy.—Twelve public health physicians in the state formed the Florida Academy of Preventive Medicine and Public Health in Jacksonville June 19. The new organization, reported to be the second of its kind in the nation (North Carolina was first), has elected Dr. George A. Dame, director of the Bureau of Local Health Services for the Florida State Board of Health, Jacksonville, president; Dr. Turner E. Cato, director of the Dade County Public Health Department, Miami, vice president, and Dr. Frank M. Hall, Alachua County Health Department director, Gainesville, secretary-treasurer. The purpose of the group, says Dr. Dame, is "to encourage the study, improve the practice and advance the cause of preventive medicine and public health."

ILLINOIS

Public Health Appointment.—Dr. Jackson P. Birge has been appointed health officer of the Illinois Department of Public Health's northwest region, with headquarters in Rock Island. Since 1948 he has served as a district health officer for the Indiana State Board of Health and as health officer of the Elkhart (Ind.) County Health Department.

Association of Blood Banks.—Physicians interested in blood banks and representatives of the larger blood banks in the state met May 23 in Chicago to organize the Illinois Association of Blood Banks. This society is organized as a nonprofit organization for the following purposes: (1) to promote and foster the exchange of ideas and materials and the dissemination of information relating to blood banking and its technical methodology; (2) to plan for and foster cooperation in times of disaster; (3) to function as a clearing house on questions relating to training of personnel common to such institutions; (4) to encourage high standards of service, and (5) to promote, aid, and encourage extension of similar services throughout the state. Elected officers are Dr. Israel Davidsohn, Chicago, president; Dr. Max Appel, Champaign, vice president, and Dr. A. M. Wolf, Chicago, secretary-treasurer. President-elect is Dr. George Milles, Chicago.

Chicago

Society News.—At the annual meeting of the Chicago Society of Internal Medicine May 28 the following officers were elected: Dr. Frank B. Kelly, president; Dr. Lowell T. Coggeshall, vice president, and Dr. Ernest G. McEwen, secretary-treasurer.——The Chicago Gynecological Society on June 15 elected the following officers: Dr. M. Edward Davis, president; Dr. Edward M. Dorr, president-elect; Dr. Edwin J. De Costa, secretary, and Dr. Harry Boysen, treasurer.

Dr. Shambaugh to Head Department.—Dr. George E. Shambaugh has been named professor and chairman of the department of otolaryngology at Northwestern University Medical School, effective Sept. 1. He will succeed Dr. Howard C. Ballenger, who will devote full time to his private practice and to revision of a medical textbook. Dr. Shambaugh has been associated with the Northwestern Medical School since 1941. He also is chief of Wesley Memorial Hospital's division of otolaryngology.

Grants for Research.—Three Chicago organizations and companies have awarded grants to the University of Illinois College of Medicine in support of research investigations: Asthmatic Children's Aid, $10,000 in support of histochemical and immunological studies to be conducted under the supervision of Dr. Ben B. Rappaport; Swift and Company, $8,250 for a study of the relationship of bile to cholesterol to be conducted under the direction of Dr. Andrew C. Ivy, and G. D. Searle and Company, $5,540 in support of a study undertaken by Dr. Michael H. Streicher of the effect of beta-diethylaminoethyl xanthene-9-carboxylate (banthine®) on the motility of the small and large intestines.

Instructorship Awards.—Fourth-year students in the University of Illinois College of Medicine have presented Dr. Frederick W. Hiss and Dr. Carl J. Marienfeld with the Raymond B. Allen Instructorship Awards for the 1950-51 school year. The awards,

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

designed to honor excellency in individual instructorship given by faculty members to students, are presented annually by each class in the college of medicine. Dr. Morris Green and Dr. Max Samter were presented with awards by the third-year class. Dr. Earl W. Cauldwell received the second-year award, and Parke H. Simer, Ph.D., received the award from the first-year class. Each of the award winners received a key in the form of a golden apple. Their names will be placed on the permanent plaque, which hangs in the Chicago Illini Union.

KANSAS

Personal.—Dr. Eldred V. Thiehoff, chairman of the department of public health and preventive medicine at the University of Kansas School of Medicine, Kansas City, has accepted an appointment to the editorial staff of *Excerpta Medica.* This nonprofit organization seeks to publish abstracts of articles from every available medical journal and is located in Amsterdam, the Netherlands. Dr. Thiehoff will be an editor in Section 4, Medical Microbiology and Hygiene.

Appoint Head of Neurosurgical Section.—Dr. William P. Williamson, associate in surgery, University of Kansas School of Medicine, Kansas City, became full-time chief of the section of neurosurgery on July 1 succeeding Dr. Frank R. Teachenor, who has directed the neurosurgery section since its organization in 1924. Dr. Teachenor, although giving up administrative duties, will continue teaching and clinical research at the medical center in Kansas City. Dr. Williamson joined the faculty in 1945. During 1941 and 1942 he served as a captain in the Army Medical Corps. From 1942 to 1945 he held a residency in neurosurgery at the Neurological Institute, New York. In addition to staff appointments in private hospitals in the city, he has been attending neurosurgeon at Children's Mercy Hospital.

LOUISIANA

Dr. Talbot Honored.—At the meeting of the Louisiana State Medical Society in May a bronze plaque was presented to Dr. Paul T. Talbot, New Orleans, "in appreciation of 33 years of meritorious, valuable and faithful service as secretary-treasurer" to the society. Dr. Talbot retired last year.

Society News.—The Louisiana Diabetes Association at its annual meeting in May re-elected Dr. Arthur A. Herold Sr., Shreveport, president, and Dr. Manuel Gardberg, New Orleans, vice president. Dr. Arthur A. Herold Jr., Shreveport, was chosen secretary-treasurer. Dr. Seale Harris, Birmingham, Ala., spoke on diabetes and hyperinsulinism.

State Medical Election.—At the annual meeting of the Louisiana State Medical Society May 9 Dr. Edwin L. Zander, New Orleans, was installed as president. The following were elected: Dr. William E. Barker, Plaquenine, president-elect; Dr. Charles B. Odom, New Orleans, first vice president; Dr. H. Whitney Boggs, Shreveport, second vice president; Dr. C. Grenes Cole, New Orleans, re-elected secretary-treasurer; Dr. Andrew V. Friedrichs, New Orleans, re-elected chairman of the house of delegates, and Dr. H. Ashton Thomas, New Orleans, re-elected councilor of the First Congressional District.

MARYLAND

Personal.—At the annual meeting of the Medical and Chirurgical Faculty of Maryland April 25 Dr. John H. Hornbaker, Hagerstown, was elected a member of the board of medical examiners of Maryland to serve until June, 1955. Dr. Hornbaker succeeds Dr. W. Allen Griffith, Berwyn, retired.

Drs. Long and Schoenbach Leave Johns Hopkins.—Dr. Perrin H. Long, director of the department of preventive medicine, and Dr. Emanuel B. Schoenbach, associate professor of preventive medicine, at Johns Hopkins University School of Medicine, Baltimore, have accepted appointments at the new State University of New York College of Medicine, which is being developed in Brooklyn. Dr. Long will be professor and executive officer of the department of medicine. From 1929 to 1940 he was associate and associate professor in the department of medicine at Johns Hopkins and became professor and director of the department of preventive medicine in 1940. Dr. Schoenbach will become professor of medicine Aug. 1. He will also be director of the medical services at the Maimonides Hospital in Brooklyn. He has been associated with Johns Hopkins since 1946.

MASSACHUSETTS

Dr. Bauer Appointed Jackson Professor.—Dr. Walter Bauer has been appointed Jackson Professor of Clinical Medicine at Harvard Medical School and chief of medical services at Massachusetts General Hospital, Boston, effective July 1. He succeeds Dr. James H. Means, who has held both posts since 1923. Dr. Bauer is currently associate professor of medicine at Harvard and physician at the hospital. The professorship was named in memory of Dr. James Jackson, who was Hersey Professor in the Harvard Medical School from 1812 to 1836 and was a founder and the first physician of Massachusetts General Hospital. In 1924 Dr. Bauer became medical resident of Massachusetts General Hospital and in 1926 was appointed research fellow in medicine at Harvard Medical School. He has been associated with both institutions since that time.

MINNESOTA

Dr. Spink to Lecture in Europe.—Dr. Wesley W. Spink, Minneapolis, University of Minnesota professor of medicine and consultant on brucellosis for the World Health and the Food and Agricultural organizations of the United Nations, will spend July and August in England, France, Italy, and Yugoslavia correlating current brucellosis research. Dr. Spink is director of the United States Brucellosis Center at the University of Minnesota. His work in Europe was described by Dr. Spink as a cooperative health effort on an international basis designed to bring together information of the various brucellosis research centers for the benefit of each country. Dr. Spink left Minneapolis June 23 for London, where he will give an address before the International Congress of Clinical Pathology July 18. He will speak before the microbiology section on "Some Clinical Problems Relating to the Laboratory Control of Chemotherapy."

MISSOURI

Chest Physicians Meeting.—The following program was presented before a recent meeting of the Missouri chapter of the American College of Chest Physicians in Kansas City.

Dr. Gideon O. Proud, Kansas City, The Sinuses and Bronchiectasis.
Dr. Andrew L. Banyai, Milwaukee, Potentialities of Artificial Pneumoperitoneum.
Dr. Corrin H. Hodgson, Rochester, Minn., Diagnosis and Management of Circumscribed Lesions of the Lung.

An x-ray conference was held with Dr. Lawrence E. Wood of Kansas City as moderator. The following officers were elected: Dr. Elmer E. Glenn, Springfield, president; Dr. Lawrence E. Wood, Kansas City, president-elect, and Dr. Alexander J. Steiner, St. Louis, secretary-treasurer.

Evarts Graham Becomes Professor Emeritus.—Dr. Carl A. Moyer, professor of surgery and dean of the Southwestern Medical College in Dallas, Texas, has been appointed Bixby Professor of Surgery and head of the department of surgery at Washington University School of Medicine, St. Louis, succeeding Dr. Evarts A. Graham. Dr. Graham, who will become professor emeritus of surgery, will remain in St. Louis and continue to be connected with Washington University and the affiliated hospitals in the medical center. At present he is visiting in Glasgow, Scotland, where he received an honorary degree during ceremonies celebrating the 500th anniversary of the University of Glasgow. Dr. Moyer plans to assume his duties at Washington University Medical Center in October. In 1941 he was appointed instructor in surgery at Michigan and was promoted to assistant professor in 1943. From 1944 to 1946 he was surgical director of Wayne County General Hospital, Detroit. Since 1946 he has been professor of experimental surgery at Southwestern Medical College in Dallas and about a year ago became dean. Dr. Graham came to Washington University staff 32 years ago. He is one of the world's leading figures in the field of surgery and has been called the "father of modern chest surgery." In 1933 he performed the first operation for successful removal of an entire lung in one stage for treatment of cancer of the lung. Among his numerous honors and awards is the Distinguished Service Medal of the American Medical Association, awarded at the San Francisco meeting in 1950 (The Journal, July 8, 1950, page 901).

NEW YORK

Public Health Appointment.—Dr. John Browe has been promoted to director of the bureau of nutrition of the New York State Health Department, with which he has been associated since 1949. Dr. Browe has been clinical director of a nutrition study in Burlington, Vt., and research associate in the University of Vermont Medical School. He also was consultant in nutrition to the U. S. Public Health Service before joining the state health department.

Personal.—Arthur Knudson, Ph.D., associate dean and professor of biochemistry at Albany Medical College, has been granted a year's leave of absence to teach in the two medical schools at Bangkok, Thailand (Siam). He left for Bangkok June 25. Dr. Knudson's Bangkok assignment was the result of his earlier appointment as a visiting professor to the Washington University School of Medicine in St. Louis. In conjunction with the United States Economic Cooperation Administration, Washington University has developed a reciprocal teaching program between the faculties of its school of medicine and those of the two medical schools in Thailand.

New York City

Institute of Geriatrics.—The new two million dollar Max and Bertha Weinstein Pavilion, a home for 150 elderly persons and a laboratory for research into problems of the aged, was dedicated in the Bronx May 27. The building was named in honor of the late Max and Bertha Weinstein, who helped maintain the institution for the aged.

Fund to Help the Aged.—The Mayor's Advisory Committee for the Aged has received a $25,000 grant from the Rockefeller Foundation for research on facilities for the aged in the city. Louis I. Dublin, Ph.D., a vice president of the Metropolitan Life Insurance Company, is head of a subcommittee to carry out the one-year study. The committee will try to determine what can be done to prevent the debilities of old age and at the same time utilize the abilities of the group. Persons over 65 in New York represent 7.3% of the population.

Appoint Assistant Dean.—Dr. Joseph M. Pisani has been appointed assistant dean and instructor of medicine at the College of Medicine at New York City, State University of New York. He has been associated with the George Washington University Hospital and School of Medicine as clinical instructor in medicine and is executive director of the committee on medical sciences of the Research and Development Board, Washington, D. C. Dr. Pisani entered military service in 1943 and for 16 months was overseas with the Fifth Army in North Africa and Italy. Dr. Pisani's father, who has been in general practice in New York for over 50 years, and two brothers also are physicians.

OKLAHOMA

State Medical Election.—Dr. L. Chester McHenry, Oklahoma City, became president of the Oklahoma State Medical Association at a meeting in Tulsa in May. Officers elected include: Dr. Alfred R. Sugg, Ada, president-elect; Dr. Allen Gibbs, Oklahoma City, vice president; Dr. Clinton Gallaher, Shawnee, speaker of the house of delegates, and Dr. John F. Burton, Oklahoma City, delegate to the American Medical Association, with Dr. William W. Cotton, Poteau, vice delegate. Dr. Lewis J. Moorman, Oklahoma City, was re-elected secretary-treasurer.

PENNSYLVANIA

Cancer Detection Program.—The Medical Society of the State of Pennsylvania has asked its members to join in a plan to emphasize that every doctor's office is a cancer detection center. "Every physician in Pennsylvania is being asked to make available a 'five-point' cancer detection examination to each of his patients at their request at least once a year," declared Dr. Harold B. Gardner, Pittsburgh, president of the society. "Doctors who are willing and able to cooperate will display a plaque in their recepton rooms so that their patients will know that they can request this service at a fee to be established by the individual physician." The Five-Point Cancer Detection Examination Program was planned by three Pennsylvania cancer-fighting agencies: the commission on cancer of the medical society, the cancer control division of the department of health, and the Pennsylvania Division of the American Cancer Society. The Philadelphia Division of the American Cancer Society, in cooperation with the cancer committee of the Philadelphia County Medical Society, began a similar program several months ago. At the present time more than 1,000 physicians are participating in the Philadelphia area alone. The state local, and county medical societies will inform the local newspapers when the physicians in their communities are prepared to initiate this program.

Philadelphia

Dr. Gordon to Head Women's Medical College.—Dr. Burgess Lee Gordon, clinical professor of medicine at Jefferson Medical College, will become the first full-time, paid president of the century-old · Woman's Medical College of Pennsylvania. Dr. Gordon will organize an industrial health division to make the college and its hospital at Henry Ave. and Abbottsford Rd. more useful in that highly industrialized area. For the division's facilities and personnel and for those of another scheduled new division on geriatrics the college is expected to seek more than three million dollars from the public. Heretofore the presidency has been on an honorary, part-time basis without salary. Academic direction of the college has been generally vested in its deans, who, since 1886, have all been women. The present dean, Marion S. Fay, Ph.D., will continue as head of the faculty. The new president said it was planned to build up and expand all departments in the college and to encourage research.

WEST VIRGINIA

Society News.—Dr. David C. Prickett, Lumberport, was elected president of the West Virginia Public Health Association at its annual meeting held in Huntington May 3-5. Dr. Prickett is health officer for District No. 4.——Dr. Arthur C. Chandler, Charleston, was named president of the West Virginia Academy of Ophthalmology and Otolaryngology at the annual spring meeting April 27-28. Dr. Melvin W. McGehee, Huntington, was named president-elect, and Dr. Keith E. Gerchow, Morgantown, treasurer. Dr. Ben W. Bird, Princeton, was reelected secretary.

State Medical Meeting.—The annual meeting of the West Virginia State Medical Association will be held at the Greenbrier, White Sulphur Springs, July 19-21 under the presidency of Dr. Frank J. Holroyd, Princeton. Out-of-state speakers include the following:

Arnold S. Jackson, Madison, Wis., Cysts and Tumors of the Neck.
Henry R. McCarroll, St. Louis, Common Orthopedic Problems Which Can be Managed in the General Practitioner's Office.
George E. Burch, New Orleans, Water and Electrolyte Balance.
Ralph M. Tovell, Hartford, Conn., Recent Trends in Anesthesiology.
Arthur R. Colwell, Evanston, Ill., Diagnosis and Treatment of Diabetic Acidosis.
Stewart Wolf Jr., New York, Relation of Life Stress to Organic Disease.
LeRoy H. Sloan, Chicago, A Composite Picture of Hypertension.
Oscar Swineford Jr., Charlottesville, Va., Role of the Practitioner in the Management of Asthma.
Emil Novak, Baltimore, Primary Dysmenorrhea.
Frank E. Adair, New York, Hormone Therapy in Cancer of the Breast.
John A. Campbell Colston, Baltimore, Papillary Tumors of the Renal Pelvis and Ureter with Special Reference to Operation o nthe Solitary Kidney, with Case Presentations.

The president's address, "Prophylaxis of Ewingism," will be given Thursday evening. Dr. John W. Cline, San Francisco, President of the American Medical Association, will speak Friday at 7 p. m. on "Problems Facing American Medicine in the Immediate Future." The cancer committee of the association will hear Dr. Adair as their guest speaker Saturday at 2 p. m. The annual banquet will be held Saturday at 7 p. m.

GENERAL

Examinations in Pathology.—The American Board of Pathology will hold examinations at Northwestern University Medical School, Chicago, Oct. 11-13. The first day and a half will be devoted to pathological anatomy and the second day and a half to clinical pathology.

Meeting of Physicians in Alcoholics Anonymous.—The second international conference sponsored by the physician members of Alcoholics Anonymous will be held in Clayton, N. Y., at the Hubberd Hotel August 4-5. The conference will deal with the medical problems of alcoholism. All physicians interested in the problem are cordially invited to address acceptance to Dr. Clarence R. Pearson, 8 Brown Ave., Scottsville, N. Y.

Industrial Medicine Society Changes Name.—The American Association of Industrial Physicians and Surgeons was rechristened the Industrial Medical Association at the annual meeting in Atlantic City, N. J. The society chose as officers for the coming year Dr. Adolph G. Kammer, Pittsburgh, president, and Dr. Earle A. Irvin, Detroit, president-elect. Dr. Arthur K. Peterson, Chicago, continues as secretary and Dr. Edward C. Holmblad, Chicago, as treasurer and managing director.

Rockefeller Foundation Divisions Merge.—A new division of medicine and public health was established in the Rockefeller Foundation June 1 under the direction of Dr. Andrew J. Warren, who has been with the foundation since 1921. The division represents a merger of the former international health division with the former division of medical sciences. Dr. Alan Gregg, who has for 20 years been director for the medical sciences, has been made vice president. Dr. Warren has been head of the international health division since 1945.

Career Research Investigator Appointed.—Dr. Victor Lorber, associate professor of biochemistry at Western Reserve University, Cleveland, has been appointed the first career investigator of the American Heart Association. The career investigator is free to engage in research of his own choosing. He may work in any institution in the United States that offers adequate facilities. As the income of the American Heart Association increases, it will undertake the financial support of a growing number of career investigators. Dr. Lorber was assistant professor, department of physiology, at the University of Minnesota, Minneapolis, from 1944 to 1946.

Tuberculosis Society Elections.—Three tuberculosis societies held annual meetings in Cincinnati May 14-18 and chose the following officers. The National Tuberculosis Association installed Dr. Alton S. Pope, Boston, as president; Dr. Sidney J. Shipman, San Francisco, president-elect; Kemp D. Battle, Rocky Mount, N. C., secretary, and Collier Platt, New York, treasurer. The American Trudeau Society, medical section of the NTA, installed Dr. John H. Skavlem, Cincinnati, as president; Dr. David A. Cooper, Philadelphia, president-elect, and Dr. John D. Steele, Milwaukee, secretary-treasurer.—Robert W. Osborn, New Rochelle, N. Y., assumed the presidency of the National Conference of Tuberculosis Workers, and Mrs. Dalrie S. Lichtenstiger, Los Angeles, was named president-elect.

Dr. Martha Eliot Resigns from WHO.—The resignation of Dr. Martha Eliot as assistant director-general of the World Health Organization in charge of advisory services was announced in June. She will be replaced by Dr. Marcellino Gomes Candau, who is at present director of the WHO division of organization of public health services. Before she joined the staff of WHO in June, 1949, Dr. Eliot was associate chief of the U. S. Children's Bureau. For many years she has been active in international health work. Dr. Candau, who joined the World Health Organization about a year ago, will direct all the services rendered by WHO to countries through public health teams, disease control demonstrations, consultants, training centers, and fellowships. Before coming to WHO, Dr. Candau was superintendent of the Service Especial de Saude Publica, a cooperative public health program of the Brazilian government and the Institute of Inter-American Affairs.

Schering Award Winners.—Dr. Solomon I. Griboff, New York, serving an internship at New York City's Mt. Sinai Hospital, is the winner of the Schering Award for 1950. Dr. Griboff, a senior medical student at Syracuse University College of Medicine when he enrolled in the competition, was presented a check for the first prize of $1,000 for his paper on "The Clinical Use of Steroid Hormones in Cancer." Co-authors Robert W. Winters and Henry M. Williams, both third year students at Yale University School of Medicine, New Haven, Conn., were selected in a tie for second prize with Kenneth J. Ryan, third year student at Harvard Medical School, Boston. They were awarded duplicate prizes of $500 each. Monte J. Meldman, third year student at Marquette University School of Medicine, Milwaukee, was awarded the third prize of $300. Twenty-five contestants received honorable mention, and each received special awards in acknowledgement of their contributions.

Rehabilitation Manual on Multiple Sclerosis.—The National Multiple Sclerosis Society is distributing a 54-page physician's manual entitled *Multiple Sclerosis—Application of Rehabilitation Techniques* by Dr. Edward E. Gordon of New York University-Bellevue Medical Center. This manual was made possible by a grant to the society from the Barnes Foundation, Bristol, Conn., and a gift in memory of Percy Rivington Pyne Jr., of Bernardsville, N. J. It was developed under the direction of Dr. Howard A. Rusk, New York. The manual is designed to facilitate rehabilitation at home. The new manual includes tests with directions for scoring in order to enable the physician to evaluate the extent of disabilities. Activities of daily living are given special emphasis in the manual, with suggestions on the use of specially constructed devices to increase the patient's ability to ambulate in his home. Chapters are devoted to the use of crutches and wheel chairs. Another section deals with means of coping with bladder and bowel difficulties.

Tuberculosis Mortality in the United States.—The U. S. Public Health Service has reported that the nation's death rate from tuberculosis dropped about 9 per cent in 1949 to 26.2 per 100,000 population. A further decline of 15 per cent occurred during the first 11 months of 1950 when the provisional rate (based on a 10 per cent sampling of death certificates) was 22.6 per 100,000 population. With the exception of a slight increase during the 1917-18 influenza epidemic, the death rate for all forms of tuberculosis has shown a downward trend for almost half a century. The death rate for respiratory tuberculosis has decreased 86 per cent, from 174.5 per 10,000 population to 24.5. Despite this decrease, respiratory tuberculosis constitutes over 90 per cent of all deaths from the disease. In 1949 the death rate for men from this cause was 32.5, almost twice as high as the death rate for women, 16.6. The death rate for other forms of tuberculosis has declined from 19.9 to 1.7 per 100,000 population. Mortality rates from tuberculosis continue to be more than three times as high for the nonwhite groups as for the white.

WHO's Executive Board Session.—The executive board of the World Health Organization will convene its ninth session at Geneva beginning Jan. 21, 1952, under the chairmanship of Jacques Parisot, France. The principal decisions taken during the eighth session include the following: The 1951 expenditure level was raised from $6,150,000 to $6,497,400 to provide relief for the civilian population of Korea and for Turkish refugees from Bulgaria. Emergency action was taken to help prevent epidemics in the famine-stricken areas of India, and $30,000 was appropriated for the purchase of medical supplies to prevent outbreaks of cholera and malaria in North Bihar. The board appointed Dr. I. C. Fang regional director of the Western Pacific area with headquarters in Manila, P. I., and authorized the establishment of an African regional organization, which will serve countries and territories south of the Sahara. The board requested that work be initiated on four new international health regulations to deal with the following problems: (1) the control of malaria insect vectors in international traffic, (2) sanitation standards at airports, (3) international pharmacopoeia, and (4) legal protection of international nonproprietary names of drugs. The board also asked WHO to continue its study of population problems, particularly those aspects that pertain to health, including measures for the control of population increases.

MEETINGS

National Medical Association, Philadelphia, Aug. 20-24. Dr. John T. Givens, 1108 Church Street, Norfolk 10, Va., General Secretary.

Post Graduate Medical Assembly of South Texas, Shamrock Hotel, Houston, Texas, July 23-25. Mrs. W. H. Dahme, 229 Medical Arts Bldg., Houston, Executive Secretary.

Reno Surgical Society Conference, Riverside Hotel, Reno, Nev., Aug. 23-25. Dr. Olin C. Moulton, 130 N. Virginia St., Reno, Nev., Chairman.

Rocky Mountain Radiological Society, Denver, Aug. 9-11. Dr. Maurice D. Frazer, 1037 Stuart Building, Lincoln, Nebr., Secretary.

West Virginia State Medical Association, The Greenbrier, White Sulphur Springs, July 19-21. Mr. Charles Lively, 1031 Quarrier St., Charleston 24, Executive Secretary.

INTERNATIONAL

Association Internationale de Psychotechnique, Gothenburg, Sweden, July 24-28. Dr. Franziska Baumgarten-Tramer, Thunstrasse 35, Berne, Switzerland.

European Congress on Rheumatism, Barcelona, Spain, Sept. 24-27. Dr. Gunnar Edströn, Lund, Sweden, Secretary.

General Practitioners Study Club International, Rome, Italy, Sept. 12-15. Dr. John O'Connell, 10300 Lackland Road, St. Louis 14, Mo., U. S. A., President.

International Anesthesia Research Society, London, England, Sept. 3-7. Mr. R. W. Cope, University College Hospital, London W.C.1, England.

International Association of Allergists, Zurich, Switzerland, Sept. 23-29. Prof. A. S. Grumbach, Hygiene Institut der Universitaet Zurich, Gloriastr. 32, Zurich, Switzerland.

International Congress of Anesthesiology, Nursing School of the Salpiettre, 47 Boul de l'Hospital, Paris, France, Sept. 20-22. 12 rue de Seine, Paris 6^e, France, Secretariat.

International Congress of Clinical Pathology, London, England, July 16-20. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W.9, England, Secretary.

International Congress on Industrial Medicine, Instituto Superior Técnico, Lisbon, Portugal, Sept. 9-15. Dr. Luis Guerreiro, Instituto Nacional do Trabalho e Previdência, Praça do Comercio, Lisbon, Secretary General.

International Congress on Mental Health, Mexico City, Mexico, Dec. 11-19. Mrs. Grace E. O'Neill, Division of World Affairs, National Association on Mental Health, 1790 Broadway, New York 19, N. Y.

International Congress of Physical Medicine, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Honorary Secretary.

International Congress of Psychology, Stockholm, Sweden, July 16-21. Secretariat: Psychological Institute, Observotoriegatan 8, Stockholm, Sweden.

International Gerontological Congress, Hotel Jefferson, St. Louis, Mo., U. S. A., Sept. 9-14. Dr. John E. Kirk, 5600 Arsenal Street, St. Louis 9, Mo., Chairman, Program Committee.

International Hospital Congress, Brussels, Belgium, July 15-21. Capt. J. E. Stone, 10 Old Jewry, London E.C., England, Secretary.

International Poliomyelitis Congress, Copenhagen, Denmark, Sept. 3-7. Prof. Dr. Niels Bohr, Statens Seruminstitut, 80 Amager Blvd., Copenhagen S., Denmark, President.

International Society of Surgery, Paris, France, Sept. 24-29. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, Secretary General.

International Society for the Welfare of Cripples, Fifth World Congress, Stockholm, Sweden, Sept. 9-14. Mr. Donald V. Wilson, 54 E. 64th St., New York 21, N. Y., U. S. A., Executive Director.

Pan American Congress on Tuberculosis, Guayaquil and Quito, Ecuador, S. A., July 14-22. Dr. Marco Martinez M., Casilla de Correos No. 116, Guayaquil, Ecuador, Secretary General.

Pan Pacific Surgical Association Congress, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

Students' International Clinical Congress, Leyden, Utrecht, Groningen and Amsterdam, Holland, July 10-28. N. A. M. Bergstein, Oude Gracht 143 bis, Utrecht, Holland, Secretary General.

World Confederation for Physical Therapy, Copenhagen, Denmark, Sept. 7-8.

World Medical Association, Stockholm, Sweden, Sept. 15-21. Dr. Louis H. Bauer, 2 E. 103d St., New York 29, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Arizona:* *Examination.* Phoenix, July 17-19. *Reciprocity.* Phoenix, July 21. Sec., Dr. J. H. Patterson, 316 W. McDowell Road, Phoenix.

California: *Written.* San Francisco, Aug. 20-23. *Oral.* Los Angeles, August 18. *Oral and Clinical Examination for Foreign Medical School Graduates.* Los Angeles, August 19. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

Colorado:* *Reciprocity.* Denver, July 10. Sec., Dr. George H. Gillen, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, July 10-11. Sec. to the Board, Dr. Creighton Barker, 160 St. Ronan St., Hartford. *Homeopathic.* Derby, July 11-12. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, July 10-12. *Reciprocity.* Dover, July 19. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

Georgia: Atlanta, June. August, Oct. 9-11. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. John Y. Battenfield, Agana.

Hawaii: *Examination.* Honolulu, July 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Idaho: Boise, July 9-11. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

Maine: Augusta, July 10-11. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Massachusetts: *Examination.* Boston, July 10-13. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston 33.

Nevada:* Carson City, August 6. Sec., Dr. G. H. Ross, 112 North Curry St., Carson City.

New Hampshire: Concord, Sept. 12-13. Sec., Dr. John Samuel Wheeler, Room 107 State House, Concord.

New Mexico:* Santa Fe, Oct. 8-9. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

North Carolina: *Reciprocity.* Morehead City, July 28. Sec., Dr. Joseph J. Combs, 419 Professional Bldg., Raleigh.

North Dakota: Grand Forks, July 4-7. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination.* Columbus, December. *Reciprocity.* Columbus, Aug. 14. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oregon:* *Examination.* Portland, July 5-7. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland 4.

Pennsylvania: *Examination.* Philadelphia and Pittsburgh, July 10-13. Acting Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: *Examination.* Santurce, Sept. 4. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

Rhode Island:* *Examination.* Providence, July 5-6. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Dakota: Rapid City, July 17-18. Sec., Dr. Clarence E. Sherwood, 109 Center St., West, Madison.

Utah: Salt Lake City, July 11-13. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Washington:* Seattle, July 16-18. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

West Virginia: Charleston, July 9-11. Sec. Dr. N. H. Dyer, Capitol Bldg., Charleston 5.

Wisconsin:* Milwaukee, July 10-12. Sec., Dr. C. A. Dawson, River Falls.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Juneau, August. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

District of Columbia: *Examination.* Washington, Oct. 22-23. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington.

Iowa: *Examination.* Des Moines, July 10. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: Detroit and Ann Arbor, Oct. 12-13. *Examination.* Sec., Miss Eloise LeBeau, 501 W. Michigan Ave., Lansing 15.

Nebraska: *Examination.* Omaha, Oct. 2-3. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

Nevada: *Examination.* Reno, July 3. Sec., Mr. Frank Richardson, University of Nevada, Reno.

Oklahoma: Oklahoma City, Sept. 14. Sec., Dr. Frank C. Gallaher, 813 Braniff Bldg., Portland 4.

Oregon: *Examination.* Portland, Sept. 8 and Dec. 1. Sec., Dr. Charles D. Byrne, State Board of Higher Education, University of Oregon, Eugene.

Rhode Island: *Examination.* Providence, August 8. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Tennessee: *Examination.* Memphis, July 5-6. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

Texas: *Examination.* Austin, October. Chief Clerk, Mr. B. H. Kirk, 306 Nalle Bldg., Austin.

Washington: *Examination.* Seattle, July 11-12. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

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* Basic Science Certificate required.

DEATHS

Emerson, Linn ⊕ Orange, N. J.; born in McDonough, N. Y., in 1873; Jefferson Medical College of Philadelphia, 1897; an Associate Fellow of the American Medical Association and in 1914-1915 a member of its House of Delegates; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; on the advisory board of Selective Service during World Wars I and II; at one time attending oculist at Manhattan Eye, Ear, and Throat Hospital in New York; consulting ophthalmologist to the New Jersey Orthopedic Hospital, House of the Good Shepherd, Dover (N. J.) General Hospital, and the Orange Memorial Hospital, where he died April 17, aged 77, of cerebral hemorrhage.

Hodges, Joe Shirley, Dallas, Texas; born in Canton, Texas, Sept. 23, 1897; Tulane University of Louisiana School of Medicine, New Orleans, 1923; clinical associate professor of pediatrics at Southwestern Medical School of the University of Texas; formerly on the faculty of Baylor University College of Medicine; member of the American Medical Association; a charter member of the Dallas Southern Clinical Society; in 1947 president of the Dallas Pediatric Society; president of the Highland Park school board; chairman of the management board that planned and built the Park Cities YMCA and president of the Southwestern Amateur Athletic Union; served as city health officer for University Park; affiliated with Parkland Hospital; died April 24, aged 53, of coronary occlusion.

Coonse, George Kenneth ⊕ Boston; born in Seattle Dec. 25, 1897; Harvard Medical School, Boston, 1924; certified by the National Board of Medical Examiners; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; associate in orthopedic surgery at his alma mater; affiliated with Boston City Hospital and the Newtown-Wellesley Hospital in Newton Lower Falls; at one time professor of orthopedic surgery at the University of Missouri in Columbia, where he had been consulting orthopedic surgeon at Boone County Hospital and chief surgeon of the Missouri State Crippled Children's Service; died Feb. 15, aged 53.

Salinger, Harry, Chicago; born in Chicago March 7, 1883; Jenner Medical College, Chicago, 1912; member of the American Medical Association; past president, vice president, and formerly director of the Bankers Association for Foreign Trade, a vice president and director of the Chicago Association of Commerce, a member of the foreign advisory committee of the University of Illinois, and a member of the executive committee of the foreign reconstruction committee of the National Foreign Trade Council; retired vice president of the First National Bank of Chicago; died in St. Luke's Hospital April 8, aged 68, of carcinoma of the liver.

Brown, Thomas Kenneth ⊕ St. Louis; born in Soldier's Grove, Wis., Dec. 17, 1898; Washington University School of Medicine, St. Louis, 1924; professor of clinical obstetrics and gynecology at his alma mater; specialist certified by the American Board of Obstetrics and Gynecology; member of the American Gynecological Society; served as president of the St. Louis Gynecological Society; chief-of-staff of Homer G. Phillips Hospital; affiliated with City, St. Louis Maternity, Barnes, and Children's hospitals; died in Rochester, Minn., April 30, aged 52, of coronary insufficiency.

Blandford, Mark Hardin, Columbus, Ga.; Baltimore Medical College, 1908; for many years city physician; on the staff of City Hospital, where he died April 6, aged 66, of diabetes mellitus.

Browning, Irving Robert, Grand Rapids, Mich.; Rush Medical College, Chicago, 1920; surgeon for the Pennsylvania Railroad Company; served during World War I; died in Butterworth Hospital April 29, aged 59, of coronary occlusion.

Buechler, Joseph L. A., Freeburg, Mo.; Barnes Medical College, St. Louis, 1893; physician for the Chicago, Rock Island & Pacific Railroad; died April 21, aged 77, of diabetes mellitus and heart disease.

Burriss, Walton Swindells, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1905; member of the American Medical Association; affiliated with St. Luke's and Children's Medical Center; died in Newton, Pa., April 23, aged 68, of coronary thrombosis.

Cabot, Caroline Whittier, Weehawken, N. J.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1887; died April 26, aged 96.

Cardell, Leonard Arthur, Nashville, Tenn.; Meharry Medical College, Nashville, 1929; died April 12, aged 47.

Clark, Samuel Ford, Ypsilanti, Mich.; Meharry Medical College, Nashville, Tenn., 1916; formerly county coroner; served during World War I; died April 19, aged 62.

Cohen, Rose, New York; Cornell University Medical College, New York, 1905; an Associate Fellow of the American Medical Association; died in April, aged 84, of arteriosclerosis.

Combs, John Wesley, Santa Ana, Calif.; Kentucky University Medical Department, Louisville, 1906; died in Santa Ana Community Hospital April 25, aged 75, of coronary thrombosis, chronic arthritis, abdominal aneurysm, and prostatic hypertrophy.

Conroy, John Stanislaus, Miami, Fla.; Jefferson Medical College of Philadelphia, 1910; served during World War I; died March 30, aged 63, of coronary artery disease.

Cox, Jonathan West, Powell, Tenn.; Wayne University College of Medicine, Detroit, 1943; served an internship and residency at Knoxville (Tenn.) General Hospital; county health officer; died March 23, aged 41, of heart disease.

Cragwall, Albert Owen, Stephenville, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; member of the American Medical Association; died May 18, aged 74, of heart disease.

Davison, Bruce Howard, Port Arthur, Texas; Baylor University College of Medicine, Dallas, 1920; member of the American Medical Association; died April 9, aged 54, of carcinoma of the pancreas and liver.

De Armond, Richard S., Portland, Ore.; Williamette University Medical Department, Salem, 1904; member of the American Medical Association; died April 20, aged 75, of cerebral hemorrhage.

Decker, John Jacob ⊕ Manhasset, L. I., N. Y.; New York University Medical College, New York, 1897; past president of the Bronx County Medical Society; served on the staff of the Harlem Eye and Ear Hospital in New York; died in Albany March 7, aged 77, of cerebral arteriosclerosis.

Donovan, Patrick M., Canandaigua, N. Y.; University of Buffalo School of Medicine, 1901; died April 30, aged 76.

Dugan, Lawrence Jay, Maplewood, Mo.; University of Arkansas School of Medicine, Little Rock, 1933; member of the American Medical Association and the American Association of Industrial Physicians and Surgeons; served during World War II; died in the Veterans Administration Hospital, Jefferson Barracks, April 25, aged 44, of cerebral thrombosis, hypertension, and cardiovascular disease.

⊕ Indicates Fellow of the American Medical Association.

Dulin, John Albert, Sigourney, Iowa; State University of Iowa College of Medicine, Iowa City, 1903; member of the American Medical Association; died in Mount Pleasant April 2, aged 76, of bronchopneumonia.

Ehlers, Henry ⊕ Fowler, Calif.; University of California Medical School, San Francisco, 1914; served during World War I; on the staff of Fowler Municipal Hospital, where he died April 25, aged 61, of cerebral hemorrhage.

Ellingson, Abel Rudolph ⊕ Detroit Lakes, Minn.; University of Minnesota Medical School, Minneapolis, 1925; fellow of the American College of Surgeons; past president of the Clay-Becker Counties Medical Society; for many years county coroner; served as a member of the city school board; on the staff of St. Mary's Hospital; died in St. Barnabas Hospital, Minneapolis, May 21, aged 54, of coronary thrombosis and cerebral embolism.

Epstein, Samuel S., Chicago; Chicago College of Medicine and Surgery, 1914; member of the American Medical Association; also an attorney; state representative of the 19th District; died in Mount Sinai Hospital April 21, aged 61, of coronary disease.

Eshleman, Robert H., Philadelphia; Medico-Chirurgical College of Philadelphia, 1911; member of the American Medical Association; died April 28, aged 64, of carcinoma.

Estes, Elmer Nelson, Lexington, Ky.; Louisville Medical College, 1906; member of the American Medical Association; on the courtesy staff of St. Joseph Hospital and Good Samaritan Hospital, where he died April 14, aged 68, of cerebral hemorrhage.

Faulkner, Coryell Vincent, Lake Worth, Fla.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1899; served during the Spanish-American War; died in the Veterans Administration Hospital, Coral Gables, March 19, aged 78, of arteriosclerotic heart disease.

Fischbach, Howard Phillip, Sr. ⊕ Cincinnati; Pulte Medical College, Homeopathic, Cincinnati, 1909; fellow of the American College of Surgeons; on the staff of Bethesda Hospital; died in Flathead Lake, Mont., April 22, aged 66, of coronary thrombosis.

Fisher, John Baxter, Memphis, Tenn.; Memphis Hospital Medical College, 1901; died in the Baptist Hospital April 6, aged 76.

Fisher, Roy Alm, Jr., Knoxville, Tenn.; University of Tennessee College of Medicine, Memphis, 1939; member of the American Medical Association and Southeastern Surgical Congress; died in Fort Sanders Hospital April 29, aged 36, of Hodgkin's disease.

Gholson, Norman Glasgow, Holly Springs, Miss.; Medical College of Ohio, Cincinnati, 1904; died in Memphis April 8, aged 75.

Hall, Rosetta Sherwood, Ocean Grove, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1889; for many years a medical missionary in the Far East; died April 5, aged 85, of heart disease.

Hodskins, Morgan Brewster, Palmer, Mass.; University of Vermont College of Medicine, Burlington, 1899; member of the American Medical Association, American Psychiatric Association, and the New England Society of Psychiatry; specialist certified by the American Board of Psychiatry and Neurology; served with the Massachusetts Department of Mental Health; retired as superintendent of Monson State Hospital in 1946; died in Wing Memorial Hospital April 3, aged 76, of arteriosclerosis.

Horton, Barney Elliott, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1900; member of the American Medical Association; died April 23, aged 77.

Hutcherson, Robert L., Delaplaine, Ark.; Memphis Hospital Medical College, 1903; member of the American Medical Association; died in St. Bernard's Hospital in Jonesboro, April 26, aged 83.

Jenifer, Daniel of St. Thomas ⊕ Towson, Md.; University of Maryland School of Medicine, Baltimore, 1904; served in France during World War I; examining physician for the police and fire departments of Baltimore County; for many years physician for the Maryland Training School for Boys; on the staff of Union Memorial Hospital in Baltimore; died April 30, aged 67, of myocardial infarction.

Kalloch, Herbert Franklin, Fort Fairfield, Maine; Bellevue Hospital Medical College, New York, 1898; member of the American Medical Association; served on the board of health for many years; instrumental in founding the Carnegie Library; died April 2, aged 82.

King, William Rufus, Gila, Ariz.; St. Louis University School of Medicine, 1909; served during World War I; died in the Southern Pacific Sanatorium in Tucson May 9, aged 65, of acute coronary occlusion.

Kistler, William Earl, Swarthmore, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1909; affiliated with J. Lewis Crozer Homeopathic Hospital, Chester; director of the Swarthmore National Bank; died April 24, aged 66, of aneurysm.

Kline, Ernest Hall, Nyack, N. Y.; Cornell University Medical College, New York, 1928; member of the American Medical Association; fellow of the American College of Surgeons; served during World War II; attending surgeon, Nyack Hospital; visiting surgeon, Rockland State Hospital in Orangeburg; consulting surgeon, Letchworth Village in Thiells; died April 18, aged 48.

Somers, Charles Irving ⊕ Crisfield, Md.; George Washington University School of Medicine, Washington, D. C., 1933; died in McCready Memorial Hospital April 13, aged 43, of angina pectoris.

Spencer, Frank Daniel ⊕ Salt Lake City; Columbia University College of Physicians and Surgeons, New York, 1918; fellow of the American College of Surgeons; medical director of the Pacific National Life Assurance Company; local surgeon, the Denver and Rio Grande and the Western Pacific railroads and Utah Fuel Company; affiliated with St. Mark's Hospital, where he died April 13, aged 60, of coronary occlusion.

Spencer, Wilbur F., Geneseo, Ill.; Chicago Homeopathic Medical College, 1888; member of the American Medical Association; died in Mound Park Hospital, St. Petersburg, Fla., April 6, aged 87, of cerebral thrombosis.

Stimpson, George Clyde, Poy Sippi, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1908; member of the American Medical Association; served during World War I; died April 20, aged 68, of coronary thrombosis.

Strauss, Simon ⊕ St. Petersburg, Fla.; University of the City of New York Medical Department, New York, 1891; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1893; an Associate Fellow of the American Medical Association; member of the Medical Society of the State of New York; formerly on the faculty of New York Polyclinic Medical School and Hospital; served during World War I; formerly on the staff of the Israel Zion Hospital in Brooklyn; died in the Veterans Administration Center, Bay Pines, April 7, aged 83, of arteriosclerotic heart disease.

Thomas, John M. ⊕ Columbus, Ohio; Starling Medical College, Columbus, 1900; on the staff of Grant Hospital; formerly physician at the Ohio State Penitentiary; died April 8, aged 75, of coronary occlusion.

Weiksner, Francis Alexander, Worcester, Mass.; Middlesex College of Medicine and Surgery, Boston, 1930; retired police surgeon; member of the American Medical Association; died in St. Vincent Hospital April 10, aged 49, of diabetes mellitus and hypertensive cardiovascular disease.

Weiss, Solomon, Chicago; Loyola University School of Medicine, Chicago, 1922; member of the American Medical Association; served during World War I; died in Evangelical Hospital April 28, aged 58, of coronary occlusion and arteriosclerosis.

Whitehead, Lawther Jackson ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1916; associate professor of radiology at his alma mater; specialist certified by the American Board of Radiology; served on the staffs of the Westbrook Sanatorium, Johnston-Willis Hospital, and Tucker Hospital; died Feb. 26, aged 59, of heart failure and hemiplegia.

Whitehouse, Eugene Dizer, Newcastle, Maine; Harvard Medical School, Boston, 1905; member of the American Medical Association and the Massachusetts Medical Society; formerly practiced in Quincy, Mass., where he was on the staff of Quincy City Hospital; died March 28, aged 72.

GOVERNMENT SERVICES

ARMY

Residents Begin Training in Army Hospitals.—Seventy-three Army physicians have been selected by the professional education committee of the Surgeon General's office to enter residency training on July 1 under the graduate professional education program. The number of residents selected for entry into the professional training program this year is less than in previous years owing to the fact that the Army Medical Service has fulfilled its commitment to those officers whose training was interrupted to serve in Korea by permitting them to re-enter their residencies. However, the 73 new residents will bring the total number of Army residents in training to 284.

In the selection of this group most consideration was given to those regular Army officers who had completed at least two years of commissioned service subsequent to their internship, under a policy of the secretary of defense. Officers serving in all parts of the world were considered, and those selected who were serving overseas were returned to the United States in time to begin training on July 1.

Eighteen specialty fields are represented among the 73 residents. Training in each of these specialties carries full credit toward certification by an American specialty board. This training is conducted by military and civilian physicians who are eminently qualified in their specialty fields. The new residents will be assigned to the following four Army hospitals: Brooke, Fort Sam Houston, Texas; Fitzsimons, Denver; Letterman, San Francisco, and Walter Reed, Army Medical Center, Washington, D. C.

U. S. ATOMIC ENERGY COMMISSION

Radiation Hazards Will Not Delay Rescue.—Brig. Gen. James Cooney, radiation safety adviser to joint task force 3 stated June 13 that "our experience in recent test programs repeatedly has demonstrated that radiation hazards will not delay rescue and recovery work after an air burst of an atom bomb. There is no reason that every casualty cannot be removed and treated immediately without serious radiation hazard to rescuers.

"In the case of a high aerial burst of an atomic weapon, such as I think probably would be used, there would be no residual radiation. In a low air burst just above the ground's surface, the significant residual radiation would be confined to an area 300 to 400 yards in radius. No rescue work would be required in this area because it would be devastated. Rescuers would not be subject to injurious ionizing radiation in reaching survivors.

"Radiation safety surveys made after the tests in the immediate area of Eniwetok Atoll and neighboring inhabited atolls failed to reveal any contamination of a serious nature. Food and drinking water outside the destroyed area continued to be fit for consumption.

"The immediate radiation hazard from the air burst disappears after the first two minutes. Rescue, fire fighting and recovery work can begin immediately in any area where there is life, as in any major catastrophe caused by conventional air attacks, earthquakes or disasters on the scale of those at Texas City and Halifax."

AIR FORCE

New Research Director.—Dr. Alfred H. Lawton has assumed the duties of research director for the Air Force Medical Service. Since 1948 he has been research chief for the Research and Education Service in the Veterans Administration Department of Medicine and Surgery and assistant professor of clinical medicine at George Washington University School of Medicine, Washington, D. C. He was formerly dean of the school of medicine and professor of physiology and pharmacology at the University of North Dakota and assistant professor of physiology, pharmacology and medicine at the University of Arkansas Medical School.

PUBLIC HEALTH SERVICE

Report on Influenza.—Influenza in the United States during 1951 was prevalent in the northwestern, central, and western parts of the country, according to a preliminary report on the third year of operation of the Influenza Information Center at the National Institutes of Health. The disease was mild and nearly all isolations were identified as the A-prime type, closely resembling isolations made in 1950.

The Influenza Information Center is the terminal reporting point for the Influenza Study Program in the United States. Reports of influenza outbreaks and laboratory identifications are furnished simultaneously to the center and to the state health department concerned by a network of eight regional influenza laboratories and 50 coordinating laboratories especially skilled in the investigation of influenza and other virus diseases. The Influenza Study Program in the United States is under the general supervision of an advisory committee responsible to the Surgeons General of the Public Health Service, the Army, Navy and Air Force. It is part of the world-wide influenza study program of the World Health Organization.

The first isolation of influenza virus in the winter season in the United States was reported in Pittsburgh from a patient who became ill on Dec. 27, 1950. The virus was A-prime type, but there was no general increased prevalence of influenza throughout the United States; however, isolations of virus from sporadic cases were made in the New York State region and the Michigan region. In the third week of January a small localized sharp outbreak of influenzalike disease was reported in central Alabama, and influenza virus A-prime type was subsequently isolated from material collected at that time.

In the last week of January influenza appeared in Niagara Falls, N. Y., and also in an isolated community in northwest Maine but was not confirmed etiologically. Early in February the disease increased in incidence in Niagara Falls and appeared in Buffalo and subsequently appeared in other communities in upper New York State, where several strains were established, and in some communities in New England, particularly in the eastern part of Massachusetts. During this time it also appeared in Philadelphia, reaching a peak the last of February, and influenza A-prime was recovered. Acute outbreaks occurred in three hospitals in New York City in the last half of February, involving both patients and staff, from which influenza virus was isolated. Concurrently an unusual prevalence of influenzalike disease was noted locally about the city, and virus was recovered. In Cleveland and Chicago a mild form of clinical influenza was noted in unusual numbers, and influenza A-prime virus was isolated from some of the cases. On the West Coast and in Texas clinical influenza also appeared, and serologic and virus isolation indicated it was the general A group.

During March the incidence subsided generally throughout the United States and reached normal levels the latter part of the month. Military installations, particularly Fort Dix and Fort Monmouth, N. J., had reported an unusual amount during February. The disease was very mild with no increased mortality in the young adult age groups, though the mortality figures for all ages showed a slight rise in the latter part of February and early March over a three-year median.

To date reports of 79 isolations of influenza A-prime virus have been received from laboratories in the United States this season. There have also been two type A, one type B, and one type C (Francis) strains isolated. A total of 958 paired sera have shown significant antibody rises for the general influenza A group, and 22 paired sera have shown rises for type B.

The Indo-China Mission.—Dr. Bernard W. Rosenburgh, a Public Health Service officer, was scheduled to leave June 15 for Saigon, Indo-China, to serve as a public health administrator attached to the special technical and economic mission of the Economic Cooperation Administration. He becomes the seventh PHS officer to join the Indo-China mission established by ECA at the request of the Viet-Nam government in May, 1950. He brings to his new post some six years' experience with the Bureau of Indian Affairs of the U. S. Department of the Interior, where he has served as medical officer at various Indian reservations. Previously he was superintendent of the Bronx Maternity Hospital, Bronx, N. Y., and an intern in the Israel Zion Hospital, Brooklyn. Dr. Rosenburgh received his A.B. from Columbia in 1930 and his M.D. from the University of Vienna, Austria, in 1938. His tour of duty in Indo-China is expected to last two years.

Examination for Regular Medical Officers.—An examination for appointment of medical officers in the regular corps of the United States Public Health Service will be held Sept. 4 to 6 at a number of points throughout the United States. Applications must be received no later than Aug. 6. Appointments will be made in the grades of assistant surgeon, equivalent to the Navy rank of lieutenant (j. g.), and senior assistant surgeon, equivalent to lieutenant. In making assignments, consideration is given to the officer's preference, ability, and experience; however, all commissioned officers are subject to change of station and assignment as necessitated by the needs of the service. Appointments are permanent in nature and provide opportunities to qualified physicians for a life career in clinical medicine, research, and public health.

Entrance pay for an assistant surgeon with dependents is $5,686.56 per annum; for senior assistant surgeon with dependents, $6,546. These figures include the $1,200 annual additional pay received by medical officers as well as subsistence and rental allowance. Retirement pay after 30 years of service or at the age of 64 is three-fourths of the annual basic pay at the time of retirement.

Application forms may be obtained from the Surgeon General, U. S. Public Health Service, Washington 25, D. C. Attention: Division of Commissioned Officers.

Dr. Kety Appointed Scientific Director.—Dr. Seymour S. Kety of Philadelphia has been appointed scientific director for the joint research program of the Mental Health Institute and the Neurological Diseases and Blindness Institute of the National Institutes of Health. Dr. Kety comes to the Public Health Service from the University of Pennsylvania, where he has been professor of clinical physiology at the Graduate School of Medicine. In 1949 he received the Theobald Smith Award for Research in Medical Sciences given by the American Association for the Advancement of Science. The award cited his work on measurement of blood flow and oxygen consumption of the human brain. He has been special consultant in physiology to the United States Navy and the Air Force and serves on the scientific council of the National Heart Association and the research council of the United Cerebral Palsy Association. He is also on the editorial board of the *Journal of Pharmacology and Experimental Therapeutics.*

Mission in Burma.—Dr. James Whitman Agna, Cincinnati, and Dr. David Hyman Feldman, Chicago, two Public Health Service officers, were scheduled to leave for Rangoon June 19 to join the Specialized Technical and Economic Mission in Burma, which is administered by the Economic Cooperation Administration. They are expected to remain there two years.

The ECA mission, undertaken at the request of the Burmese government, has been in existence since October, 1950, with Dr. Leroy R. Allen of the Public Health Service as chief of its public health division. The medical personnel attached to the mission now numbers 15. Primary emphasis is placed on the organization of public health demonstration teams to help train personnel within the country in modern public health methods.

Institute of Arthritis and Metabolic Disease.—The new National Institute of Arthritis and Metabolic Disease will have the following three main divisions: laboratory research branch, clinical investigations branch, and extramural programs branch. The new Institute replaces the former Experimental Biology and Medicine Institute and was established in 1950 by Public Law 692 to provide expanded activities for research in the fields of arthritis, rheumatism, and the metabolic disorders. Of the three main divisions in the new Institute, only the laboratory research branch has been established. This was formed by the transfer of the four laboratories that comprised the former Experimental Biology and Medicine Institute. Under the reorganization, the following were advanced to new positions: Dr. James S. Hundley is chief of the laboratory of biochemistry and nutrition, and Dr. Lyndon F. Small is the chief of the laboratory of chemistry. The following continue as chiefs of their laboratories: Dr. Ralph D. Lillie, laboratory of pathology and pharmacology, and Dr. Paul A. Neal, laboratory of physical biology. Chiefs of the three divisions of the NIAMD have not been appointed as yet.

Personal.—Dr. Dale C. Cameron has been appointed chief of the cooperative health services branch of the Division of Industrial Hygiene, U. S. Public Health Service. Formerly assistant director of the National Institute of Mental Health, Dr. Cameron recently completed a one-year postgraduate course at Johns Hopkins University, where he was awarded the degree of master of public health. Prior to that, he served one year as consultant to the fact-finding staff of the Midcentury White House Conference on Children and Youth, assisting in the preparation of the health section of the fact-finding report. He is a native of Nebraska.

Dr. Jack C. Haldeman has been appointed chief of the Division of State Grants of the Public Health Service succeeding Dr. Estella Ford Warner, who has been assigned to a Point 4 mission in Beirut, Lebanon. Dr. Haldeman will administer the multimillion dollar program of grants-in-aid to states for the development of state, territorial, and local public health services and will also direct a program of technical and consultive services provided, on request, to state and territorial health authorities. Since 1948 Dr. Haldeman has been medical director of the Arctic Health Research Center in Anchorage, Alaska.

112 Interns Appointed.—Appointment of 112 senior medical students to rotating medical internships beginning July 1, 1951, has been announced by the Public Health Service. The students are from 29 states, the District of Columbia, and Puerto Rico. They will serve in the 11 Public Health Service hospitals approved for internships by the Council on Medical Education and Hospitals of the American Medical Association. Interns are selected from senior students who will graduate during the year from approved medical schools. They are appointed assistant surgeons in the reserve corps of the Public Health Service and called to duty July 1. As members of the corps, interns serve on an active duty status and enjoy all the rights and privileges of commissioned officers, except that they will not be entitled to the $100 a month incentive pay.

First Dyer Lecture.—George W. Beadle, Ph.D., chairman, division of biology, California Institute of Technology, gave the first R. E. Dyer Lecture at the National Naval Medical Center, Bethesda, Md., June 21 on "Genetic Control of Metabolism." Dr. Beadle is known for his work on biochemical genetics, particularly for his demonstration of the influence of genes on specific chemical reactions.

VETERANS ADMINISTRATION

Hospital News.—On June 1, 1951, Dr. Lewis R. Wolberg, assistant clinical professor of psychiatry, New York Medical College and Flower Hospital, conducted a seminar at the Veterans Administration Hospital, Northport, L. I., N. Y., on the techniques of hypnotic induction.

Personal.—Dr. Houghton W. Baxley, present manager of the Veterans Administration Hospital in Fort Benjamin Harrison, Ind., has been appointed manager of the Huntington, W. Va., VA Hospital, replacing Mr. Samuel R. Goodwin, who will retire at the end of June. Replacing Dr. Baxley at Fort Benjamin Harrison will be Dr. Clifton H. Smith, who will move from the VA Hospital in Atlanta. The Fort Benjamin Harrison Hospital is scheduled to close in early 1952, at which time Dr. Smith will become manager of a new VA Hospital then to be opened in Indianapolis.

FOREIGN LETTERS

LONDON

Health Service Finance.—In his annual report for 1949-1950, Sir Frank Tribe, Comptroller and Auditor General, complains of the delay by the Ministry of Health in conveying to hospital authorities comments made by the auditors which "suggested irregularity or inadequate control of expenditure" (*Brit. M. J.* supp., May 12, 1951). The Ministry explained that these delays were due to pressure of work and certain other difficulties and has arranged for their more prompt attention in the future. Sir Frank Tribe also found that some hospital authorities had not adjusted or had declined to adjust excessive salaries when requested by the Ministry to do so, while in other hospitals defects have been found in the arrangements for paying wages or salaries. The Ministry told the comptroller that it relied on departmental auditors to draw attention to defects of this kind, but it proposed to include the subject in a general financial circular to hospital authorities.

A number of hospitals were still found to be failing to maintain adequate store accounts and inventories, despite criticism on this point in the Auditor General's previous annual report. Some latitude must be allowed because of the shortage of staff. The Ministry has not yet been able to extend its powers of central purchase to goods in general use other than specialized equipment and some scarce or costly drugs. The accounts include receipts totaling some 6½ million dollars from accommodations used by private (fee-paying) patients. These patients should pay enough to cover their full cost of treatment, but the Auditor General found that the charges at some hospitals were less than they should be if based on current costs in 1949-1950. In January of this year, the Ministry informed him that the situation would be watched.

The pricing of prescriptions is also considerably in arrears, and substantial payments on account are made to the chemists pending final settlement. The Ministry's auditors also drew attention to payments made to ophthalmic medical practitioners for tests carried out at hospitals at which the practitioners were employed by the hospital boards under contract as part-time consultants. The Ministry informed the Auditor General that some of these payments have been recovered, that others are being investigated, and that administrative action had been taken to prevent recurrence of irregularities of this kind.

In the same supplement of the *British Medical Journal* (May 12), Dr. Bathurst Norman of Sudbury, Suffolk, states that the annual report of the council reveals some of the problems that have arisen from the centralization of administration in the Health Service. Detailed but remote financial control by the Ministry makes for financial irresponsibility at the periphery. A nationalized health service can succeed only if it is decentralized and if responsibility is allowed locally. This pertains to professional as well as to administrative aspects. Many members of medical staffs have noted along with very substantial benefits a perceptible decline in morale and in the sense of personal responsibility. On the professional side there is no liaison between the local group and headquarters. There is, therefore, no method by which the quality of work done can be assessed. He particularly decries the deprivation of hospital staffs of effective control in staff appointments. The necessity for self-help has been removed from local hospitals, and they are losing the will and capacity for helping themselves.

Cutting from Hippocrates' Tree.—A cutting from a gigantic oriental plane tree on the island of Cos, under whose branches Hippocrates is reputed to have taught his pupils and held his open-air clinic, was planted recently in the Council garden at B. M. A. House, Tavistock Square. The cutting had been brought to this country by Dr. G. Loverdos, a Greek physician. Similar cuttings had been planted in Paris, Rome, Berne and Madrid. The Greek ambassador in London, M. Leon Melas, expressed the hope that the tree might flourish as a symbol of the happy relations between Great Britain and Greece.

PARIS

First International Congress on Psychiatry.—This congress was held in Paris Sept. 18-27, 1950, under the honorary presidency of Professor Lhermitte and the presidency of Professor Delay. More than 2,000 persons, representing 47 nations, attended.

BRAIN FUNCTION STUDIES FOLLOWING LOBOTOMY AND TOPECTOMY

H. J. de Barahona Fernandes (Lisbon) discussed the development of psychosurgery, which has achieved spectacular results. Meyer (London) reviewed the results of 122 anatomic examinations in cases of prefrontal leukotomy. Granular or agranular areas constitute the only striking architectural difference in the lobe itself. The study showed that specific mental faculties cannot be related to well-defined regions of the granular frontal cortex but that there is a relation between the degree of alteration of personality and the damage sustained by prefrontal regions. No significant information has been obtained with respect to the pathology of functional psychosis. According to the author, the recurrence of symptoms of schizophrenic and affective psychosis, and of neurosis after almost complete isolation of the prefrontal cortex, and the persistence of schizophrenic symptoms despite total bilateral lobectomy of frontal lobes render doubtful the theories on specific location of the morbid processes of these psychoses.

Freeman (Washington) reported on his research, made in collaboration with Watts, that led to "precision leukotomy." According to a hypothesis, visceral conscience, personal conscience, social conscience, and moral conscience would depend on neuronic mechanisms of the frontal cortex. Even very anterior lobotomy diminishes the function of dreams and phantasy and the activity of the mind. When lobotomy is more posterior, the other functions of personality are more or less reduced. When affect has disappeared, prefrontal lobotomy is valueless.

MENTAL TEST METHODS AND CLINICAL PSYCHIATRY

Bleuler (Zuerich) believes that projective tests are indispensable in the study of repression in the child but that they constitute only one means among others in adults. The tests help one to discover what is healthy in the patient. R. Nyssen (Brussels) believes that psychiatric application of the tests requires great prudence, as they are still in the experimental stage. A. Guera (Madrid) studied the thematic apperception test. The selectivity of projective tests must be perfected before results are comparable with, for instance, those of efficiency tests.

INDICATIONS FOR SHOCK THERAPY

Fiomberti (Varese) noted that shock therapy may be useful in neurosis but is usually contraindicated in epilepsy. The opinion that insulin fixes the results of electroshock is in no way established. R. Dreszer (Poznan) studied the role of acetylcholine in the pathogenesis and treatment of schizophrenia. Acetylcholine acts less through its relatively weak convulsive effects than through autonomic changes. L. Meduna (Chicago) discussed carbon dioxide therapy. Sakel (New York), who introduced insulin therapy in 1927, gave a critical account of the successes and failures of the treatment. He stressed that insulin exerts a direct action on the central nervous system and can, therefore, be effective in schizophrenia. This partly explains the failure of other convulsants used without insulin in the treatment of this disease.

EVOLUTION AND PRESENT TREND OF PSYCHOANALYSIS

Mlle. Freud (London) discussed unfulfilled infantile desires. She advocated further study of the new concepts of pyschoanalysis by experiments on normal and deprived children. Levine (Cincinnati) explained the trend of psychoanalysis in America, its role in psychiatry and in general medicine. He also dealt with the problem of dependence, which, he says, is maintained by verbal intercourse in the classical methods of psychoanalysis and which present techniques endeavor to avoid. Alexander (Chicago) emphasized this point.

The items in these letters are contributed by regular correspondents in the various foreign countries.

BEHAVIOR DISORDERS IN CHILDREN

Professor Heuyer presented statistics on 4,187 subjects treated in his ward for 20 years or more. Social adaptation, evaluated on the basis of professional, familial and social behavior criteria, is good in 10% of cases, medium in 50%, poor in 12% and very poor in 9%. These results permit optimism with respect to the future of children with behavior disorders. Thibout (Amsterdam) proposed a structural analysis of personality with distinction made between the material factors and psychological factors. Krevelen (The Hague) studied the problems of the only child, Fortes (Lisbon) children's reactions to war memories, and Sunier (Amsterdam) the prognosis of children of psychotic parents.

GENETICS AND EUGENICS

Fraser Roberts (London) dealt with the genetics of feeblemindedness, Slater (London) with the genetic aspects of personality, and Penrose (London) modern methods in the study of human genetics. F. Kallmann (New York) studied 1,332 families with twins. A recessivity of schizophrenia and incomplete dominance of depressive mania were noted.

MISCELLANY

Other subjects discussed at the congress included psychopathology of delirium, disorders consecutive to war, depersonalization, endocrine and vitamin therapy in psychiatry, group psychotherapy and cybernetics.

Several films were presented, including one portraying the activities of the clinic of child neuropsychiatry of the Paris Faculty (Professor Heuyer), one on group therapy (Slavson, U.S.A.), and one on anxiety in the child (by Rene Spitz). Two important exhibits were organized, one on pathologic art, at the Sainte-Anne's Hospital (Paris), and the other on the history and progress of psychiatry, at the Palais de la Decouverte.

NORWAY

Discovery of Cancer of the Stomach by Mass Radiography.—The latest publication from the Norwegian Radium Hospital comes from Dr. Selmer Rennæs, who makes an urgent plea, in the organ of the Norwegian Medical Association (*Tidsskrift for Den Norske Laegeforening*), April 15, 1951, for the systematic radiographic examination of everyone over the age of 50. He cites the findings of two large Norwegian hospitals, where in recent times only 17% of the patients with cancer of the stomach underwent resection. The percentage of operable cases could be raised by the routine periodic examination of the feces for blood in persons of cancer age, but experience has shown that the public is unwilling to cooperate wholeheartedly in such a measure. On the other hand, systematic radiographic examinations are accepted quite willingly. According to the experience of the Radium Hospital, it is possible to examine some 30 to 50 persons hourly by this method at a cost of about kr.2 each (three radiograms).

The cost of such systematic radiographic examination for cancer of the stomach is evidently much higher in the United States than in Norway. As Dr. Rennæs points out, estimates in the United States show that it costs from $5,000 to $10,000 to discover a single case of cancer of the stomach by this method. These figures correspond to kr.35,000 to kr.70,000. On the other hand, if one case of cancer of the stomach can be found in Norway per 1,000 radiographic examinations of persons over the age of 50, the cost would be only between kr.2,000 and kr.3,000 for each positive case. The cost to the community of employing so many more radiologists for the execution of this measure would, of course, largely depend on the frequency with which it had to be repeated, and Dr. Rennæs points out that it should not be necessary to repeat the examination every three months as suggested in some quarters. As for the age limit, he would reserve this measure for persons over the age of 50, as statistics for 1926-1935 have shown that between the ages of 31 and 50 there were only six deaths from cancer of the stomach per 10,000 live males in Norway. However, for persons with hypochylia, achylia, or pernicious anemia—conditions accompanied by susceptibility to cancer of the stomach—the age limit should be some years below 50, and their radiographic examination should be repeated every year or half-year.

There remains one argument against this measure, and Dr. Rennæs admits that it is cogent. The sense of security conveyed by a negative radiographic report may be false. Römcke of the Drammen Hospital has shown that 56 out of 616 cases represented diagnostic mistakes referable to an ordinary radiographic examination. But no diagnostic test is foolproof, and, as long as other diagnostic methods are not ignored, this argument against a systematic search for cancer of the stomach by radiographic examinations should lose much of its force.

Unification and Control of Medical Certificates.—The Norwegian Medical Association has, through special committees, studied the problem of medical certificates for several years. The last committee issued a report on March 1, 1951. It is certain not to be the last word on the subject, but it gives a good bird's-eye view, and it will provide the basis for a permanent solution of this problem. There seems to be an almost indefinite variety of certificates to which a doctor is expected to put his name, and the possibilities of trouble for him are even more varied. He is blamed for (1) basing his certificates on inadequate examinations, (2) issuing certificates of so reserved or summary a character that they have little or no medical significance, or (3) betraying such great prejudice in favor of the person examined that the certificate is medically indefensible and incompatible with objective judgment.

Three main recommendations are presented in this report: 1. Rules should be laid down for the guidance of doctors with regard to their conduct in this matter. 2. A permanent body with a paid secretary should be created with a view to dealing with certificate problems as they arise. 3. The doctor's work in this field should be rationalized so that some uniformity in the drafting of certificates can replace the present confusion of forms. With regard to the second point, it is urged that the first duty of the proposed new body would be to raise the general medical standard in the matter of issuing medical certificates. This body should be composed of four members and four alternates. They should be appointed by the Norwegian Medical Association for a term of four years and should preferably be resident in or near Oslo, in order to be always on hand when required. The problem of how to remunerate doctors for this work will, perhaps, be simplified when rationalization and standardization have thrown further light on its scope.

Prenatal Prophylaxis of Congenital Syphilis.—Since 1943, the notifications of cases of congenital syphilis in Norway have numbered about 70 to 80 every year. This is assuredly an underestimate, because of the cases that escape detection for want of evidence of syphilis during the first few months of life. Again, syphilis is probably often overlooked when it leads to abortion and stillbirth. For many years the prenatal prophylaxis of congenital syphilis has hinged on arsenic and bismuth, whose efficacy was such that they were not promptly abandoned when treatment of syphilis with penicillin was introduced in 1943. At the dermatological department of the Rikshospital in Oslo, penicillin has been combined with arsenic and bismuth until it was clear that penicillin alone was reliable. Such an approach might not be attractive to many, but it has been supported by a report by Dr. T. Berdal published in *Tidsskrift for Den Norske Lægeforening*, April 1, 1951. His material consists of 45 syphilitic pregnant women, most of whom were given the combined treatment in the three-year period 1947-1949. With only one exception the infants born to these women were kept under clinical and serologic control for more than four months after birth, and in most cases for more than a year. Not one of the infants showed any sign of syphilis. The reaction of the women was equally satisfactory. They were kept under observation for eight to 42 months, and not one presented any evidence of clinical or serologic relapse at the last examination. In this series of cases, there were four women whose pregnancies ended in abortion or stillbirth, but in none of them could syphilis be held responsible.

Despite this achievement, combined treatment with penicillin, arsenic, and bismuth has now been replaced in Dr. Berdal's hospital by treatment with penicillin alone. The adoption of this policy is to a certain extent a tribute to the work of Mary S. Goodwin, whose report in 1950 on the treatment of more than 850 pregnant women treated in various ways with penicillin is singularly convincing. The treatment now adopted at Dr. Bersdal's hospital consists of injections of procaine penicillin G in oil and aluminum monostearate (2%). The total dose consists of six million units, the daily dose being 600,000 for 10 days. The 600,000 units may also be given every other day for 20 days. This treatment can be given at any time during pregnancy, but preferably before the eighth month.

Life Expectancy in Norway.—In April, the Norwegian Statistical Central Bureau issued a statement concerning its calculation of life expectancy in Norway in a prewar and a postwar period, the former covering the years 1931-1940 and the latter 1945-1948. Between these two periods, a remarkable increase in life expectancy can be recorded. For boys at birth it has risen by 3.7 years and for girls by 4.1 years. A man aged 50 has an increased life expectancy of 1.5 years; a man aged 60 has an increased life expectancy of 1.3 years. Even at the age of 70, for men the increase is 0.8 years. The mortality for women at the child-bearing age is now so much reduced between the ages of 15 and 45 that, among 100 women aged 15, as many as 94 would probably be still alive at the age of 45 years. As for males, among 100 aged 15, there should still be 74 alive at the age of 65. Only 69 of them would have been alive at this age according to the calculations based on the 1931-1940 period.

DENMARK

The Anesthesiology Center in Copenhagen.—The first course in anesthesiology in Copenhagen was completed on April 27, marking a very important event in the history of this subject. This course, which is being resumed early this summer, is organized by the faculty of medicine of the University of Copenhagen and the Danish ministry of health in cooperation with the World Health Organization (WHO). It is the first international course of its kind to be held in Europe, and its international character is emphasized by the considerable number of countries represented. The teachers come from the United States, England, and Sweden, and the students are from Austria, Denmark, Finland, Iceland, Jugoslavia, Norway, and Sweden. In the course beginning this summer, France, Greece, and Switzerland are also represented. On the teaching staff, the cooperation has been secured of surgeons, physicians, physiologists, psychiatrists, radiologists, pharmacologists, and pathologists.

In a leading article in the organ of the Danish Medical Association, *Ugeskrift for Laeger,* it is pointed out that this wide range of subjects, corresponding to the above list of specialists, shows what an all-embracing specialty anesthesiology has become since the days when the administration of a general anesthetic was a mere incident in the hospital life of a junior intern or nurse. Hospitals now are creating anesthesia appointments which are difficult to fill, for want of candidates possessing the qualifications now held essential for a specialist in this field. In the same number of *Ugeskrift for Laeger,* the leading article is written by a distinguished American, Dr. Ralph M. Waters, whose contribution to anesthesia is so important that the editor refers to him as the "grand old man" of anesthesiology.

Danish Cancer Statistics.—The centralization of cancer data in the Cancer Register, instituted only a few years ago, is now yielding valuable statistical information, which Dr. Johannes Clemmesen publishes from time to time. His latest report covers the years 1943-1947, inclusive. He gives the totals and the percentage incidence of malignant disease for each organ or group of organs for each sex. For example, there were 1,056 males with malignant disease of the buccal cavity and pharynx. These cases represented 5.16% of all the cases of malignant disease throughout the body in males. The corresponding percentage for females was only 1.59. Males were also in the majority with regard to the digestive tract and peritoneum, with 49.37% as compared with only 33.95% for females. Within this same area, malignant disease of the rectum made up 10.31% of the 49.37 for males, while the corresponding figure for females with cancer of the rectum was only 5.27%. Primary malignant disease of the lungs was far commoner in males than females, the percentages being 3.51 and 0.50, respectively. The incidence of breast cancer was 19.50% for females and only 0.26 for males. Malignant disease of the uterus was responsible for 16.67% of the female cases. The total incidence of malignant disease in the period under review shows males in the minority, with 20,477 cases as compared with 25,758 female cases.

AUSTRALIA

Contract Medical Practice Ceases.—For nearly a hundred years in Australia there has been in existence a form of contract medical practice known as "lodge" work. This was modeled on the "club" practice in Britain. Under this arrangement, members of "friendly societies" would pay a regular amount of about $10 per year and would receive various benefits, such as sick pay, free medicines, funeral benefit, and medical service. The contract would be made between the society and a general practitioner for medical attendance on the member, his wife, and children under 16 years of age at an annual fee of about $4. The medical attendance was little more than "advice and a prescription," and for anything more than this the patient would be sent to a public hospital. Concessional rates (extra to the contract) would be charged for obstetrics, surgery and anesthesia. The scheme worked reasonably well, and it did provide the young doctor with the nucleus of a practice and an assured though small income. Some doctors "specialized" throughout their life in this type of practice, having more than 1,500 families on their lists.

Now, however, this form of practice will cease. Lodge members will become private patients with full freedom of choice of doctor, and the lodge funds set aside for the purpose of providing medical service will be used to refund in part the fees paid to doctors by the member. The doctors will be prepared to make some concessions to such members, but the important principle of "fee-for-service" instead of contract has been established. Negotiations have reached finality in every state except Tasmania and Queensland, and these are expected to come into line with the rest of Australia.

One of the reasons for this situation is the rapid growth of medically organized prepayment schemes, which provide the part payment of a wide range of medical and hospital services. The largest of these organizations is the Medical Benefits Fund of Australia. The present government has announced its plans to subsidize those approved organizations that offer a wide scale of refund payments. The "friendly societies" did not offer a sufficiently wide refund service, and consequently they will cease to function in this way or else increase the scope of their medical benefits on a refund-of-fee basis.

Infection with Leptospira Pomona.—In the case of two diseases identified in Queensland, Q fever and infection with Leptospira pomona (Pomona fever), what was thought to be purely local diseases have now been shown to be worldwide. Q fever, caused by Rickettsia burneti, was originally identified by Derrick as the cause of a local outbreak among slaughterhouse workers in a Brisbane suburb. Now it has been reported from every country with laboratory facilities for investigation. Similarly, a new strain of leptospirosis was reported in Pomona, a small town of a thousand inhabitants a hundred miles north of Brisbane. The cases were few, they occurred only in wet weather and only in persons (mostly men) who were in daily contact with cows and pigs.

A similar infection has been observed in the Argentine and in the United States in humans, and recovery of the organism from horses with iridocyclitis has been reported. Also, the organism has been shown to be a cause of meningitis. In the original description of the syndrome of infection with Leptospira pomona, muscular pain was a constant feature; recent investigators in the United States report that muscle biopsy has shown characteristic histological features on the third day of infection, whereas agglutination reactions do not develop before about 12 days.

CORRESPONDENCE

TEACHING BY EXAMPLE

To the Editor:—The Army informed the Washington office of the American Medical Association that one out of an estimated 3,000 ASTP physicians with no active military service had volunteered for active duty by the end of August, 1950 (A. M. A. Capitol Clinic No. 34, Sept. 5, 1950). A reliable source of information indicates that by early April, 1951, only half the physicians in the United States in categories 1 and 2, registered last October under the professional men's draft law of September, 1950, had agreed to accept a commission and be available without protest for active duty in the armed forces. Such evidence of the lack of a feeling of a very personal, individual, and immediate sense of responsibility for the care of the members of the armed forces who protect us from ruthless aggressors is a matter of grave concern. This is over and above the annoyance of the method which must be used to get these physicians into active service.

We believe that the "Wait and see if I won't escape" attitude has been spawned in large part by the deferment policies promoted during World War II by faculty members of medical schools and by trustees, directors, and chiefs of services in teaching and nonteaching hospitals, and acquiesced to by draft boards and the armed forces. Medical students, hospital interns and residents, practicing physicians, and the general public need only the dimmest of vision to see the advantages—professional, personal, and monetary—accruing to many of those who stayed home. The editorial board of the *Norfolk Medical News* called attention to this ill-advised deferment policy in a letter to The Journal of April 17, 1943. We see many of the same weakling-breeding policies employed now.

The need for teaching by example is basic. We urge the following program, so that all, including the medical students, may see that the members of the medical profession share responsibilities, even if belatedly:

1. That the Department of Defense, each branch of the armed forces, the American Medical Association, state societies, medical schools, and hospitals join in urging a revision of the draft law, extending the age to 55 for physicians liable to service under it. The period of required active duty should be set at two years if the total strength of the armed forces be under five million, at three years if the total strength is over five million.

2. That the Department of Defense and each branch of the armed forces revise tables of organization to utilize more physicians of ages 45-55, and that physicians of this age group who have not served in World War I or II be placed soon on active duty, utilizing the older first. This will reduce the number of young physicians who may be required to serve for unduly prolonged terms or for more than one term of duty.

3. That medical schools, hospitals and clinics make immediate plans for releasing their physicians and that they draw up, publicize, and follow a system of rotation.

The example of deferment of "teachers" and "leaders" has led to a serious defect of thought in the profession. An example of sharing responsibility will help to correct this defect, which is far more serious than to be simply classified as "unfortunate" and allowed to continue. Prompt and vigorous revision of policy is necessary.

The Editorial Board, *Norfolk Medical News*

Basil E. Barton, M.D.
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David Halbersleben, M.D.
Dean S. Luce, M.D.
Philip S. Foisie, M.D.
George W. Papen, M.D.
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Carl Bearse, M.D.
Edward C. Smith, M.D.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

NEW HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in Atlantic City, June 9, 1951:

U. S. Army Hospital, Camp Rucker, Ala.
Sumter County Hospital, York, Ala.
Desert Mission Hospital, Phoenix, Ariz.
Valley Hospital, Willcox, Ariz.
U. S. Army Hospital, Camp Chaffee, Ark.
Washington County Hospital, Fayetteville, Ark.
Randolph County Hospital, Pocahontas, Ark.
Rogers Memorial Hospital, Rogers, Ark.
U. S. Army Hospital, Camp Cooke, Calif.
U. S. Army Hospital, Camp Roberts, Calif.
Monrovia Hospital, Monrovia, Calif.
Del Puerto Hospital, Patterson, Calif.
U. S. Air Force Hospital, Travis Air Force Base, Calif.
Northeast Colorado Memorial Hospital, Haxtun, Colo.
Sedgwick County Memorial Hospital, Julesberg, Colo.
Pioneers Hospital, Meeker, Colo.
Everglades Memorial Hospital, Pahokee, Fla.
U. S. Army Hospital, Camp Gordon, Ga.
U. S. Army Hospital, Camp Stewart, Ga.
Ben Hill County Hospital, Fitzgerald, Ga.
St. Anthony General Hospital, St. Anthony, Idaho
Twin Falls Clinic Hospital, Twin Falls, Idaho
Monterey Convalescent Home, Unit 1, Chicago
Monterey Convalescent Home, Unit 2, Chicago
Whitehaven Acres, Glenview, Ill.
Community Memorial Hospital, Staunton, Ill.
U. S. Army Hospital, Camp Atterbury, Ind.
Sloss Hospital, Terre Haute, Ind.
Memorial Hospital, Arkansas City, Kan.
Neosho Memorial Hospital, Chanute, Kan.
Bob Wilson Memorial Grant County Hospital, Ulysses, Kan.
U. S. Army Hospital, Camp Breckinridge, Ky.
State Tuberculosis Sanatorium, Paris, Ky.
U. S. Army Hospital, Camp Polk, La.
Curtis Clinic and Hospital, Mansfield, La.
Hargrove Clinic and Hospital, Oakdale, La.
Sabine Clinic and Hospital, Zwolle, La.
Utterback's Private Hosp., Bangor, Maine
Notre Dame Hospital, Biddeford, Maine
Deer's Head State Hospital, Salisbury, Maine
Athol Memorial Hospital, Athol, Mass.
U. S. Army Hospital, Falmouth, Mass.
U. S. Army Hospital, Fort Devens, Mass.
Bon Secours Hospital, Methuen, Mass.
Student Hospital, Ann Arbor, Mich.
Kirwood General Hospital, Detroit, Mich.
Lakeside General Hospital, Detroit, Mich.
U. S. Army Hospital, Fort Custer, Mich.
Midland King's Daughters' Home Hospital, Midland, Mich.
Glen Eden Hospital, Warren, Mich.
Lakefield Municipal Hospital, Lakefield, Minn.
Pioneers' Infirmary, Virginia, Minn.
Dr. Henry Schmidt Memorial Hospital, Westbrook, Minn.
Humphreys County Memorial Hospital, Benzoni, Miss.
District Two Community Hospital, Durant, Miss.
Tunica County Hospital, Tunica, Miss.
Stephens College Infirmary, Columbia, Mo.
U. S. Army Hospital, Fort Leonard Wood, Mo.
Lexington Memorial Hospital, Lexington, Mo.
Veterans Admin.. Hospital, Manchester, N. H.
Pinehaven Nursing Home and Hospital, Pinewald, N. J.
Memorial General Hospital, Las Cruces, N. Mex.
Francis Delafield Hospital, New York City
Madison Avenue Hospital, New York City
Central Suffolk Hospital, Riverhead, N. Y.
Rhinehart Memorial Hospital, Silver Creek, N. Y.
Alamance County Hospital, Burlington, N. C.
Alexander County Hospital, Taylorsville, N. C.
Our Lady of Mercy Hospital, Coldwater, Ohio
Ohio Tuberculosis Hospital, Columbus, Ohio
U. S. Air Force Hospital, Dayton, Ohio
Glencliff Hospital, Euclid, Ohio
Cottage Grove Hospital, Cottage Grove, Ore.
Myrtle Creek Hospital, Myrtle Creek, Ore.
Douglas Community Hospital, Roseburg, Ore.
Community Bailey Hospital, Chamberlain, S. D.
Little Creek Sanit. and Hospital, Concord, Tenn.
Cookeville General Hospital, Cookeville, Tenn.
Alexian Brothers Mountain Resort, Signal Mountain, Tenn.
Shackelford County Memorial Hospital, Albany, Texas
Student Health Center, Austin, Texas
Stephens County Hospital, Breckenridge, Texas
Jones Children's Haven, Dallas, Texas
Flow Memorial Hospital, Denton, Texas
Dilley Clinic Hospital, Dilley, Texas
City Hospital, Hemphill, Texas
Goodnight Hospital and Clinic, Lubbock, Texas
Madison County Hospital, Madisonville, Texas

Midland Memorial Hospital, Midland, Texas
Beaver County Hospital, Milford, Utah
U. S. Army Hospital, Camp Pickett, Va.
U. S. Army Hospital, Fort Worden, Wash.
Monroe General Hospital, Monroe, Wash.
Veterans Admin. Hospital, Seattle, Wash.
Veterans Admin. Hospital, Beckley, W. Va.
Veterans Admin. Hospital, Clarksburg, W. Va.
U. S. Army Hospital, Camp McCoy, Wis.
Crandon Emergency and Maternity Hospital, Crandon, Wis.
Holy Family Hospital, New Richmond, Wis.
Policlinica Sanchez Castano, Vega Baja, P. R.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Compensation of Physicians: Parent's Liability for Services Rendered to Children.—The plaintiff physician filed suit for the reasonable value of professional services rendered to the minor children of the defendant following a collision between a railroad train and an automobile in which the children were riding. From a judgment in favor of the physician, the defendant appealed to the Supreme Court of Nebraska.

The plaintiff alleged that he was a licensed physician and surgeon of Omaha, that he rendered medical and surgical services consisting of emergency treatment and subsequent care to three minor children of the defendant after they were injured in a collision between an automobile and a train, that the services performed and the care and treatment furnished them were "necessaries" and were performed and furnished with the knowledge and consent of the defendant and that the reasonable value of such services was the amount stated in the plaintiff's complaint. The answer of the defendant was a denial. The defendant strenuously contended that the omission of the trial court to instruct the jury as to the distinction between emergency treatment and treatment after the emergency had past was prejudicial error, and that the evidence in this case limits any recovery by the plaintiff to the amount of the reasonable compensation for emergency treatment furnished to the injured minor children.

It is conceded that the plaintiff physician performed medical and surgical services for the children of the defendant. Defendant and his wife were at the Clarkson Hospital at the time the children entered it and frequently thereafter until the children were taken from it. They met the plaintiff there, knew he had rendered and was rendering the services claimed by him for their children, and were in consultations with him and other doctors concerning the children and their care. They asked the plaintiff to secure the assistance of other doctors and to consult with them, and he did. The plaintiff also consulted with Dr. Barry, defendant's family physician, and called to his assistance Dr. Best when he first got on the case because of the emergency and the fact that he could not attend the three children at one time. The plaintiff and the parents of the children talked frequently about what was being done for them and discussed the possibilities of future developments. The defendant at no time communicated with the plaintiff that his services were not wanted or that he should discontinue his care of the children. More than a month after the services of the plaintiff were completed, he received a letter from the defendant in which defendant said "I deeply appreciate what you did when these accident victims were brought into the hospital and subsequently. . . ." The period during which the plaintiff rendered services for which compensation is claimed commenced on Aug. 11, 1946 and ended on Aug. 29, 1946. On the last date the physician plaintiff sent a statement therefor to the defendant. Defendant's reply to the plaintiff, more than a month later, bearing date of Oct. 7, 1946, stated: "I am acknowledging receipt of your letter of Aug. 29, 1946, in which you enclose your bill for professional services in connection with the four persons injured in the unfortunate accident at 76th and Dodge streets on Aug. 11, 1946. While I deeply appreciate what you did when these accident victims were brought into the hospital and subsequently, I was rather shocked by the amount of this bill, which I believe to be quite excessive. When the patients have made further progress toward recovery I shall avail myself of the first opportunity to discuss the matter with you." This at least, said the court, was an implied admission by the defendant of liability to the plaintiff for some amount for services furnished by him to "the four persons injured in the unfortunate accident . . . on Aug. 11, 1946." A finding of a jury based thereon that it was an express admission of liability would not be without evidentiary support. These statements by defendant after opportunity for knowledge of all the facts, deliberation, and mature conclusion, were in direct conflict with the denial in his answer and his testimony. A declaration by a litigant against interest relevant to a matter in issue and inconsistent with what is alleged or testified to by him is proper and generally important original evidence.

The defendant also complained that the trial court failed to instruct the jury on his theory of the case because it refused to advise the jury that the plaintiff could not recover from the defendant for the medical services involved if they were rendered in his capacity as surgeon of the Chicago and Northwestern Railway Company, were part of his regular duties as such surgeon, and included in the salary he received from the railway company. The tendered instruction was that if the jury found by a preponderance of the evidence that the plaintiff was employed by the railway company to treat the defendant's children, he could not recover against the defendant. The evidence is that at the time important to this controversy the plaintiff was engaged by the Chicago and North Western Railway Company as division surgeon for it and its subsidiary, Chicago, St. Paul, Minneapolis and Omaha Railway, on a salary to care for, when he was available, injured employees and passengers who received injury in transit on the lines of these companies. The plaintiff received nothing from the companies, or either of them, or from anyone for the services rendered the children of the defendant. There is no evidence that anyone in any way connected with either of the companies communicated with the plaintiff concerning the injuries to or the services rendered the victims of the accident which resulted from a collision of the auto in which they were riding and a train of the Chicago and North Western Railway Company. The trial court properly refrained from charging the jury as requested.

Other contentions of the defendant were also overruled and, on the basis of all the evidence, the judgment of the district court in favor of the plaintiff physician was accordingly affirmed. —*Brown v. Hyslop, 45 N.W. (2d) 743 (Nebraska 1951).*

MEDICAL MOTION PICTURES

Let's Have Fewer Colds: 16 mm., color, sound, showing time 10 min. Produced in 1950 by Coronet Films with the technical advice of Fred V. Hein, Ph.D., and Donald A. Dukelow, M.D., Bureau of Health Education, American Medical Association. Procurable on purchase from Coronet Films, 65 E. South Water St., Chicago 1, or on rental from Ideal Pictures Corp., 58 E. South Water St., Chicago 1.

This film points out to children and their parents the simple practices that can substantially reduce the number of colds children get each year. It explains the importance of avoiding contact with persons who have colds, avoiding chilling or overheating, and establishing good health habits. The scientific basis of the film is sound and is in accordance with present day knowledge of the transmission and treatment of colds. It is presented on a level that is understandable and convincing to children. Furthermore, it fills an important need in that it can be used for the instruction of parents. The animated sequences illustrating the physiology of the nose and throat would probably not be understood by children of elementary school age. They can be further criticized on the basis of being so oversimplified that they lose essential detail and, thus, their value for adults. The film is recommended for use in the elementary grades and may also be advantageously used with parent-teacher groups in order to elicit the cooperation of parents in training their children. The photography and sound are excellent.

MEDICAL LITERATURE ABSTRACTS

AMERICAN

A.M.A. Arch. Internal Medicine, Chicago

87:477-626 (April) 1951

*Triethylene Melamine in Treatment of Neoplastic Disease: Compound with Nitrogen-Mustard-Like Activity Suitable for Oral and Intravenous Use. D. A. Karnofsky, J. H. Burchenal, G. C. Armistead Jr. and others.—p. 477.
Postpartum Necrosis of Anterior Lobe of Pituitary Gland: Sheehan's Disease. J. E. Cook, W. B. Bean, M. Franklin and J. F. Embick. —p. 517.
Alterations in Bacterial Flora of Throat During Oral Therapy with Aureomycin. M. Meads, W. P. Rowe and N. M. Haslam.—p. 533.
*Pulmonary Mycoses—Coccidioidomycosis and Pulmonary Cavitation: Study of 92 Cases. W. A. Winn.—p. 541.
Streptokinase and Streptodornase in Treatment of Diabetic Gangrene. L. V. McVay Jr. and D. H. Sprunt.—p. 551.
Villous Tumor of Stomach: Clinical Review and Report of Two Cases. L. Walk.—p. 560.
Renal Function in Diabetic Nephropathy. J. A. Robertson, C. H. Gray and A. H. Baynes.—p. 570.
*Clinical and Histological Observations on Case of Scleroderma Treated with Cortisone. M. Taubenhaus and M. Lev.—p. 583.
Allergy—Histamine and ACTH: Review of Literature from August 1948 to September 1950. F. M. Rackemann.—p. 598.

Triethylene Melamine in Neoplastic Diseases.—Triethylene melamine (TEM) was administered intravenously in a dose of 2 to 3 mg. daily to patients with Hodgkin's disease, lymphosarcoma, and chronic lymphatic and myelogenous leukemia. The total dose for adults was 5 to 20 mg. Temporary improvement, similar to that effected by the nitrogen mustards, resulted. Triethylene melamine, in therapeutic doses, in contrast to the nitrogen mustards, rarely causes nausea, vomiting, or venous thrombosis at the site of injury. A limiting factor in therapy is that both triethylene melamine and methyl-*bis* (2-chloroethyl) amine are injurious to normal hemopoietic function. Careful regulation of the dosage is essential, so that prolonged or fatal depression of the bone marrow will be prevented. Triethylene melamine was also given orally to 58 patients with the above diseases and with mycosis fungoides. The course of treatment usually consisted of 20 to 40 mg., given in a three to five week period. This dosage varied greatly and was modified according to the diagnosis and the general condition and hematological state of the patient. Oral therapy produced no symptoms in 21 patients, slight nausea with vomiting in 33, and severe vomiting in two patients. Temporary periods of clinical improvement were effected in the diseases mentioned, but the results in patients with miscellaneous types of carcinoma were poor. The indications for the use of triethylene melamine are similar to those established for nitrogen mustard.

Coccidioidomycosis and Pulmonary Cavitation.—Studies were made of 92 patients with residual coccidioidal cavities, over half of whom were followed five years or longer. The cavities closed spontaneously in 25% of the group of 92 patients; they persisted for years without harm in 10%; they filled and formed nodules resembling neoplastic foci in 6%, and they ruptured and produced spontaneous pneumothorax in 2%. Approximately one-third of the patients with cavities required treatment by simple pulmonary collapse measures, such as pneumothorax or pneumoperitoneum, because of excessive bleeding or the increasing size of the cavity. These collapse measures were effective in 18 instances and failed in 10. Some of the smaller cavities, with roentgenographic evidence of fairly thick or firm walls, were removed from the lung by simple excision. Larger cavities required more extensive procedures, such as lobectomy or pneumonectomy. There was neither dissemination of disease from a residual pulmonary cavity nor any evidence of transmission of the infection from one person to another during more than 10 years of study of coccidioidal disease in the San Joaquin Valley. The author stresses the importance of recognizing the residual pulmonary changes following primary coccidioidomycosis and differentiating them from the lesions of pulmonary tuberculosis and neoplastic disease.

Scleroderma Treated with Cortisone.—Cortisone was used in the treatment of a patient with diffuse scleroderma involving the skin, the lungs, and the esophagus. The disease prior to cortisone therapy had steadily progressed in spite of several therapeutic attempts. With cortisone therapy the skin became softer and more pliable but did not return to normal; the motion of the hands was significantly improved; there was decided improvement of the esophageal peristalsis and some decrease of the dilatation, swallowing became almost normal, and the patient's mental attitude improved. There was no demonstrable change in the pulmonary involvement, although the cough disappeared. Of the side effects of cortisone therapy, rounding of the face, acne, and water retention were pronounced in the patient. After treatment the skin biopsy specimen showed progressive loosening of the collagen bands and an increased waviness, approaching the normal pattern. There was no significant change in the vascular picture, and changes in the elastic pattern could be accounted for by the contiguous change in the collagen. Cortisone therapy does not affect the fundamental course of scleroderma; however, it alters the characteristic collagen pattern of the disease.

A.M.A. Arch. Surgery, Chicago

62:455-608 (April) 1951

*Neuroappendicopathy: Review of Literature and Report of 52 Cases. N. H. Isaacson and B. Blades.—p. 455.
Clinical Significance of Contact-Compression Factor in Bone Surgery. G. W. N. Eggers, W. H. Ainsworth, T. O. Shindler and C. M. Pomerat. —p. 467.
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*Studies on 5-Aminoacridine: I. In Vitro Bacteriologic Evaluation on Peritoneal Exudate from Induced Fulminating Peritonitis. P. Nemir Jr., H. H. Zinsser, E. E. Long and H. R. Hawthorne.—p. 493.
Right Thoracoabdominal Approach for Portacaval Anastomosis. W. H. Falor and R. H. Gollings.—p. 499.
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Diverticulosis and Diverticulitis of Vermiform Appendix: Brief Review and Report of 16 Cases. P. Ladin.—p. 514.
Intraperitoneal Drip After Laparotomies: Its Clinical Application. J. K. Narat and A. K. Carton.—p. 520.
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Use of Various Plastic Catheters in Subarachnoid and Peridural Spaces. H. H. Davidson, R. A. Hingson and L. M. Hellman.—p. 540.
Simple Method of Bone Grafting for Nonunion of Tibia. D. S. Miller and L. Markin.—p. 548.
Congenital Short Esophagus: Review of Literature and Eight Original Cases, Including One Autopsy Report. W. J. Sinclair.—p. 557.
Experiences with Anuria and Oliguria. E. B. Hay.—p. 565.
Neurofibroma of Stomach and Associated Gastric Ulcer: Report of Case. L. T. Palumbo.—p. 574.
Leiomyoma of Jejunum: Neoplasm Imitating Symptoms of Duodenal Ulcer. J. W. Cherry and R. L. Hill.—p. 580.
Keller Operation for Hallux Valgus and Hallux Rigidus: End Result Study. H. H. Jordan and A. E. Brodsky.—p. 586.

Neuroappendicopathy.—Neuromas are not unusual in the appendix and probably cause the removal of many so-called chronic appendixes. Two types have been differentiated, the commoner axial or plexiform neuroma, which arises from the periglandular nerve plexuses, usually after migration of argen-

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Titles marked with an asterisk (*) are abstracted.

taffin cells into this area, and the rather rare ganglioneuroma, which arises from Meissner's and Auerbach's plexuses. "Neuroappendicopathy" is a distinct clinical entity. It usually produces a dull ache or discomfort in the right lower quadrant, with slight tenderness at McBurney's point. Nausea with or without vomiting may be present. The condition can produce extremely severe pain, with acute tenderness and abdominal muscle spasm. Despite the apparent acuteness of symptoms and signs, the temperature is usually normal and the total white and differential blood cell counts tend to remain at normal levels. Careful questioning most often reveals a history of previous attacks. Of the 52 reviewed cases of the syndrome, 30 occurred in women and 22 in men. Ninety per cent of the patients fell in the age group 20 to 50. In 24 cases the diagnosis was established by the use of multiple sections of the removed appendixes and the Masson trichrome stain, while 28 were diagnosed by routine hematoxylin and eosin preparation. Before an appendix is considered normal in a patient with symptoms referable to the appendix, multiple sections stained with the Masson trichrome technique should be examined. As the diagnosis becomes commoner pathologically, ability to evaluate the clinical symptomatology of the condition will increase.

Studies on 5-Aminoacridine Hydrochloride.—The in vitro effectiveness of 5-aminoacridine hydrochloride on exudates from fulminating peritonitis induced in dogs by ligation and splitting of the appendix was compared with that of streptomycin, penicillin, sulfadiazine, and various combinations of these drugs. In the concentrations used, 5-aminoacridine hydrochloride proved at least as effective as penicillin, streptomycin, or sulfadiazine. Furthermore, its effectiveness appeared to be more consistent. There were only slight indications of a synergistic or additive effect of this drug. In most cases, when it was used in combination the effect was no better than when it was used alone.

American Heart Journal, St. Louis

41:323-482 (March) 1951

*Natural History of Coronary Artery Disease of Long Duration. E. P. Boas.—p. 323.
*Acute Myocardial Infarction with Rupture of Ventricle. R. H. Gans. —p. 332.
Cardiac Aneurysm: Clinical and Electrocardiographic Analysis. J. B. Moyer and G. I. Hiller.—p. 340.
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Normal Esophageal Lead Electrocardiogram. R. Oblath and H. Karpman.—p. 369.
Esophageal Electrocardiogram in Study of Atrial Activity and Cardiac Arrhythmias. C. D. Enselberg.—p. 382.
Nature of RS-T Segment Displacement as Studied with Esophageal Leads: Left Ventricular Hypertrophy. J. Wener, A. A. Sandberg and L. Scherlis.—p. 410.
Electrocardiographic Studies of Effect of Histamine on Cardiac Mechanism. L. H. Criep and W. K. Riley.—p. 423.
Electrokymogram in Wolff-Parkinson-White Syndrome: Study of Left and Right Ventricular Ejection. S. Dack, D. H. Paley and S. S. Brahms. —p. 437.
Various Mechanisms in Reciprocal Rhythm. H. H. Bix.—p. 448.

Coronary Artery Disease of Long Duration.—Studies were made of 115 men and nine women who had been under observation for coronary artery disease for at least 10 yr. The average duration of cardiac symptoms was 13.6 yr. The age at the onset of symptoms had no apparent affect on survival or on the course of the disease. Patients whose illness began with simple angina pectoris had a better prognosis than those in whom it was initiated by a myocardial infarct. In 15 patients who had never had hypertension cardiac enlargement developed. Eighty-one patients (65%) were without cardiac symptoms for one or more years, and 89 (72%) followed their usual occupations during most of their illness. The unpredictable, variegated course of coronary artery disease and the frequent modifications of symptomatology in patients with this disorder are emphasized.

Myocardial Infarction with Rupture of Ventricle.—The occurrence of acute myocardial infarction with rupture of the ventricle in six patients between the ages of 68 and 76 has been reported. Four of the patients were women. The consensus of the literature places the incidence of rupture following acute myocardial infarction at approximately 9%. It occurred most frequently between the ages of 65 and 75. The myocardium is at its weakest during the first four days and is likeliest to rupture during this time. Rupture occurred in four of the author's patients within the first three days. That rupture occurred nine to 12 days after the infarction in the remaining two patients supports the general consensus that rupture may occur within two to three weeks after infarction. Necropsy revealed that in each case the site of rupture was through an infarction, the involved area being in the anterior wall of the left ventricle in four patients and in the posterior wall in two patients. The "blowout" type of rupture, in which the laceration was sharp and clean, was seen only in one case. The "dissection type," in which the laceration was ragged and associated with necrosis, undermining, and dissection of the myocardium for as long a distance as 2 cm., was observed in five cases. The main factors in the mechanism of rupture were the location of the infarct; the type of disease found at the site of rupture; high intracardiac pressure due to persistent hypertension, especially diastolic hypertension, after the initial shock of infarction; undue physical and emotional strain, and progressive heart failure. The best treatment for rupture of the heart lies in its prevention by adequate treatment of the acute infarction.

American Journal of Physiology, Baltimore

164:573-848 (March) 1951

Modifying Effects of Interatrial Septal Defect on Cardiodynamics of Mitral Stenosis. D. F. Opdyke and G. A. Brecher.—p. 573.
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Non-Pressor Humoral Substance from Ischemic Rabbit's Kidney Which Causes Renal Vasoconstriction. D. B. Gordon and J. Flasher.—p. 624.
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American Review of Tuberculosis, New York

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- Solitary Lung Tumors. D. B. Effler.—p. 252.
- Bronchogenic Carcinoma as Differential Diagnostic Problem in Pulmonary Disease: II. Carcinoma Arising from Major Bronchi Complicated by Secondary Infection. J. H. Moyer and A. J. Ackerman. —p. 255.
- *Intermittent Streptomycin Regimens: Analysis of 97 Patients with Pulmonary Tuberculosis Treated with One or Two Grams of Streptomycin Every Third Day. L. A. James, L. J. Sides, W. E. Dye and V. F. Deyke.—p. 275.
- *Combined Intermittent Regimens Employing Streptomycin and Para-Aminosalicylic Acid in Treatment of Pulmonary Tuberculosis: Comparison with Daily and Intermittent Dosage Schedules. C. W. Tempel, F. J. Hughes Jr., R. E. Mardis and others.—p. 295.
- Neurotoxicity of Dihydrostreptomycin: Effects of Longer-Term Therapy. J. B. O'Connor, F. J. Christie and K. S. Howlett Jr.—p. 312.
- Therapeutic Pneumothorax in Middle-Aged and Elderly Patients. G. Bondi and G. C. Leiner.—p. 325.
- Tuberculosis in Medical and Nursing Students. R. C. Bates and W. N. Davey.—p. 332.
- Therapeutic Effect on Experimental Tuberculosis in Guinea Pigs of 4-Acetylaminobenzal Thiosemicarbazone (Tibione) in Combination with Dihydrostreptomycin as Compared with Effect of Para-Aminosalicylic Acid in Combination with Dihydrostreptomycin. D. M. Spain and W. G. Childress.—p. 339.
- Tubercle Bacilli in Bone Marrow. I. Horowitz and D. F. Gorelick. —p. 346.

Intermittent Streptomycin Therapy.—Observations were made on 97 patients with pulmonary tuberculosis (61 far and 36 moderately advanced). Forty-nine of the patients received 2 gm. of streptomycin in four divided doses every third day; 48 received 1 gm. in two divided doses every third day. A course of streptomycin therapy lasted from 126 to 189 days, depending on response to therapy, time of sputum conversion to negative, and results of serial streptomycin sensitivity studies. The patients were maintained on strict bedrest before, during, and after treatment. In addition, cod liver oil, multivitamin preparations, and 300 mg. of ascorbic acid were administered daily. Fever, sputum quantity, and cough usually improved most rapidly during the first 42 days of therapy. After the 42d day, the status of most patients (75.3%) continued to improve; in 6.2%, improvement was followed by relapse, and in 18.5% no remarkable improvement was ever noted. Patients with widespread, chronic disease and, to a lesser extent, with bacterial resistance, showed poor clinical response. Tuberculous complications responded well to intermittent streptomycin therapy, and decrease in cavitary size was effected. The incidence of streptomycin toxicity is greatly reduced by regimens of intermittent therapy. It was 1.03% and 5.0% at the completion of 126 and 189 day courses of intermittent streptomycin therapy, respectively. The use of intermittent regimens delayed the emergence of streptomycin-resistant strains of Mycobacterium tuberculosis. The conversion rate in the present study was appreciably greater than that observed on previously used daily dosage schedules of similar duration. In the entire group of 97 patients, 37 (38.1%) had sputum conversion after 126 days of therapy. The emergence to predominance of drug-resistant tubercle bacilli appeared to be most frequently associated with far advanced, cavitary, and old disease.

Combined Streptomycin and Paraaminosalicylic Acid.—A comparative study of four dosage schedules in 283 patients was carried out at the United States Army Tuberculosis Center, Fitzsimons Army Hospital, during the past four years. In each schedule the patients were treated for 120 days. The four groups consisted of 66 patients who received streptomycin, 1 or 2 gm. daily; 25 who received paraaminosalicylic acid, 12 gm. daily; 97 who received streptomycin intermittently, 1 or 2 gm. every third day, and 95 who were treated on a combined regimen of streptomycin, 1 to 2 gm. every third day, concomitantly with paraaminosalicylic acid, 12 gm. daily. The patients on each regimen were similar with respect to age, sex, race, and duration, extent, and type of disease. All patients had moderately or far advanced pulmonary tuberculosis and had received no prior antituberculous drug therapy. Clinical, roentgenographic, bacteriologic, and drug toxicity factors were evaluated after 120 days of treatment. Clinical response, in terms of reduction of fever, reduction of sputum volume, and weight gain, was equivalent on all four regimens. Of patients with roentgenographic evidence of cavitation when therapy started, the cavities disappeared in not more than 20.5% after 120 days of therapy. The best results and the highest incidence of sputum conversion were obtained with the combined intermittent regimen (streptomycin every third day, paraaminosalicylic acid daily). No instances of bacterial resistance occurred with this regimen, compared with 75.9% after daily streptomycin, 33.3% after daily paraaminosalicylic acid and 33.3% after intermittent streptomycin regimens. The high incidence of toxic reactions (57.5%) that resulted when streptomycin was given daily decreased to 5% when the drug was given every third day for a similar period. The incidence of toxicity when paraaminosalicylic acid was given daily was also 5%. The higher incidence of toxic reactions (13.1%) that resulted when the two drugs were given together was not sufficient reason to discontinue the regimen except in four instances. Results were evaluated 60 days after the 120 day courses of therapy, because in this period it was frequently necessary to supplement the prior treatment with retreatment (drug therapy) or operative procedures. Clinical relapse was approximately equal (15.1 to 22.2%) on each of the regimens. Roentgenographic relapse varied from 0% in the daily paraaminosalicyclic acid group to 14.8% in the daily streptomycin group. Bacteriologic relapse ranged from 5.5% in the daily paraaminosalicylic acid series to 31.2% in the combined intermittent regimen. A loss of bacterial resistance to one or the other of the drugs was observed; this was pronounced in the daily paraaminosalicylic acid regimen and indicates that resistance may be less permanent to this agent than to streptomycin. The regimen of choice for periods up to four months when specific drug therapy is indicated for the treatment of nonmiliary pulmonary tuberculosis is a combined intermittent regimen of streptomycin administered every third day and paraaminosalicylic acid daily.

Blood, New York

6:195-290 (March) 1951

- Direct Splenic Arterial and Venous Blood Studies in Hypersplenic Syndromes Before and After Epinephrine. C. S. Wright, C. A. Doan, B. A. Bouroncle and R. M. Zollinger.—p. 195.
- Cerebral Blood Flow and Metabolism in Pernicious Anemia. P. Scheinberg.—p. 213.
- Observations on Etiologic Relationship of Achylia Gastrica to Pernicious Anemia: XIII. Hematopoietic Activity of Vitamin B_{12a} (Vitamin B_{12b}). R. F. Schilling, J. W. Harris and W. B. Castle.—p. 228.
- Researches on Circulating Anticoagulant in a Hemophiliac. S. van Creveld, P. G. Hoorweg and M. M. P. Paulssen.—p. 233.
- Urethane-Caused Blood and Bone Marrow Changes in Agranulocytosis and Panmyelopathy of Cat. S. Moeschlin and A. Bodmer.—p. 242.
- Erythroleukemia. E. K. Blackburn and L. G. Lajtha.—p. 261.

Delaware State Medical Journal, Wilmington

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Recent Advances in Diagnosis of Coronary Artery Disease. A. H. Clagett Jr.—p. 67.
Radiotherapy of Benign Lesions Commonly Seen in General Practice. S. I. Adelman.—p. 70.

Diseases of Chest, Chicago

19:249-372 (March) 1951

Early Diagnosis and Treatment of Tuberculosis Prophylaxis. M. de Abreu.—p. 249.
*Surgical Treatment of Circumscribed Intrathoracic Lesions: Lesions Found on Routine Thoracic Roentgenologic Examinations, with Absence of Subjective Symptoms. S. W. Harrington.—p. 255.
Considerations of Clinical and Physiologic Factors in Treatment of Chronic Pulmonary Conditions. B. Gordon, H. L. Motley, P. A. Theodos and others.—p. 271.
Congenital Chondrosternal Depression (Funnel Chest) Its Treatment by Phrenosternolysis and Chondrosternoplasty. H. A. Brodkin.—p. 288.
*Resection of Auricular Appendages. W. P. Longmire Jr., J. M. Beal and W. H. Leake.—p. 307.
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Spontaneous Hemopneumothorax: Treatment by Early Thoracentesis: Report of Four Cases. M. Moser.—p. 339.
Bronchoscopy in Tuberculosis: Deformity of Major Bronchi Associated with High Diaphragm Rise in Certain Forms of Non-Surgical Collapse Therapy. M. R. Himalstein.—p. 346.
Primary Bronchogenic Leiomyoma. K. Freireich, A. Bloomberg and E. W. Langs.—p. 354.

Treatment of Circumscribed Intrathoracic Lesions.—Harrington states that when routine roentgenoscopy reveals a circumscribed intrathoracic tumor and when a clinical diagnosis cannot be established by other diagnostic methods, exploratory thoracotomy is indicated, even in the absence of symptoms. This is justified because of possible malignancy or metastasis or of eventual compression of vital structures by an expanding growth, either malignant or benign. The risk of the operation is slight because of improved techniques of surgery and of preoperative and postoperative care. In a series of 291 patients operated on by the author for various types of benign or malignant extrapulmonary and intrapulmonary circumscribed lesions (including neuroblastomas, teratomas, thymomas, coelomic cysts, endotheliomas, carcinomas of the lung, metastatic tumors, mixed tumors, hamartomas, and granulomas), 52 of the lesions were asymptomatic and 12 of these were malignant. In nine of these 12 cases the malignant process was discovered early and removed completely. In addition, the 40 benign, symptomless lesions were removed before they had caused irreparable damage to surrounding structures or had undergone malignant change.

Resection of Auricular Appendages.—The majority of peripheral emboli in patients with rheumatic heart disease and persistent auricular fibrillation originate in the auricular appendages. For this reason resection of the auricular appendages has been suggested as a means of preventing recurrent arterial embolism in such cases. This operation was performed by Longmire and associates on three patients. Two patients with peripheral embolism had left auricular appendectomy and one with pulmonary embolism had right auricular appendectomy. Mural thrombi were demonstrated in each case. Cardiac function and electrocardiograms were not apparently influenced by the operative procedure. No evidence of further embolization was noted during a follow-up period of five to 10 months.

GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

3:1-196 (March) 1951

Present Status of Caries Control. M. Massler.—p. 32.
Androgen Estrogen Treatment in Menopause. S. J. Glass and M. R. Shapiro.—p. 39.
Surgery in Thoracic Injuries: Thoracic Injuries—Part II. P. C. Samson. —p. 43.
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Hawaii Medical Journal, Honolulu

10:249-324 (March-April) 1951

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Correlation of Laboratory Data with Renal Disease. A. V. Molyneux and M. E. Berk.—p. 279.
Venous Thrombosis and Pulmonary Embolism. R. L. Hill.—p. 283.

Journal Clin. Endocrinology, Springfield, Ill.

11:235-342 (March) 1951

Spermatogenic Rebound Phenomenon After Administration of Testosterone Propionate. N. J. Heckel, W. A. Rosso and L. Kestel.—p. 235.
Isolation of Pregnanediol from Human Bile After Oral Administration of Progesterone. J. Rogers and F. McLellan.—p. 246.
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Secretory and Decidual Changes Induced in Endometrium of Oophorectomized Women by Administration of Estrogen and Progesterone. J. T. Bradbury and W. E. Brown.—p. 267.
Hypoglycemic and Eosinopenic Response to Insulin: Test for Pituitary-Adrenal Insufficiency. M. Perlmutter and M. Mufson.—p. 277.
*Uptake of Radioactive Iodine After Intravenous Administration of Tracer Doses. J. P. Kriss.—p. 289.
*Late Results from Continuous Treatment of Thyrotoxicosis with Methylthiouracil. K. Iversen.—p. 298.
Polyostotic Fibrous Dysplasia Associated with Hyperthyroidism. M. Yettra and P. Starr.—p. 312.
Addison's Disease in Negro. G. E. Bergner and A. B. Eisenstein.—p. 322.
Menarche and Pregnancy After Removal of Adrenocortical Adenoma. L. Miller de Paiva, J. I. Lobo and A. Marcondes da Silva.—p. 330.

Uptake of Radioactive Iodine After Intravenous Administration. —Tracer doses of 40 to 100 μc of radioactive iodine in 5 or 10 cc. of isotonic sodium chloride solution were administered intravenously to 30 adult patients, 18 with clinically unmistakable, untreated hyperthyroidism, eight with a clinical diagnosis of nontoxic goiter, three with a clinical diagnosis of probable hyperthyroidism, and one with classic myxedema. Radioactive iodine was also given to a control group of 19 adults, who were considered to be clinically euthyroid. The thyroid uptake one hour after the tracer dose correlated satisfactorily with the activity of the thyroid gland and with clinical toxicity, permitting differentiation between euthyroid and hyperthyroid states. The method also offers advantages over the 24 hour oral method in rapidity and in diagnostic accuracy by reducing the overlap in values between normal and hyperthyroid persons.

Late Results with Methylthiouracil in Thyrotoxicosis.—Methylthiouracil was given to 220 women and 24 men with thyrotoxicosis for an average of one year. The initial dose of the drug was 250 mg. three times daily, usually given for one or two months. When the basal metabolic rate was restored to a nearly normal level, the dose was reduced to 250 mg. once a day and treatment with this dose was continued for two to four months. The final maintenance dose was 125 mg. two or three times a week usually for six months. Nine patients died during the observation period from intercurrent causes not related to the thyrotoxicosis. Treatment was discontinued in 44 patients for various reasons and in 25 of these for hypersensitivity, but no instance of agranulocytosis was observed. Eighteen of these 25 patients continued treatment with propylthiouracil. Treatment with methylthiouracil was concluded in 169 patients, 144 of whom continued without any treatment for six months or more and were followed up for six to 63 months (average, 32.9 months). Of these 144 patients, 87% made a complete recovery and 18% were improved but showed some persistent symptoms. On reexamination the goiter was, on the whole, smaller than before treatment. Exophthalmos was present in 7% of the patients at the time of reexamination as compared with 31% before treatment. Twenty-one patients had auricular fibrillation before treatment as compared with six at the time of reexamination. True recurrences occurred in 21 of these 144 patients (14.6%) after a symptom-free period of six to 45 months. The actual frequency of recurrence was higher (20.7%), because in 18 additional patients the treatment was repeated only because of recurrence and was not yet concluded at the time of the reexamination. On the average, the recurrences were mild and the patients could soon be given a small maintenance dose. The final results in the recurrent cases were as satisfactory as those obtained in the nonrecurrent cases. The incidence of recurrence was much higher among the patients with nodular goiter than in those with toxic diffuse goiter, in whom it was only 11.9%. Therapeutic results in the patients with toxic nodular goiter also were much poorer than in those with toxic diffuse goiter. Patients with toxic nodular goiter should be primarily advised to submit to surgical treatment.

Journal of International College of Surgeons, Chicago

15:253-390 (March) 1951

Surgical Management of Conditions and Diseases Affecting Liver. H. Acuff.—p. 253.
Treatment of Recent Fractures of Neck of Femur with Acrylic Prosthesis. L. Leger.—p. 270.
"Chemical Lobotomy" for Intractable Pain. F. Mandl.—p. 276.
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Use of Streptokinase-Dornase in Certain Surgical Conditions. L. T. Wright, D. H. Smith, M. Rothman and others.—p. 286.
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Mediastinotomy: Some Technical Observations. J. Hertz.—p. 309.
Carcinoma of Cervical Stump. D. H. Witte and D. W. Ovitt.—p. 313.
Congenital Atresia of Jejunum with Meconium Peritonitis. H. A. Conrad and F. R. Robbins.—p. 320.
*Reestablishing Lymph Drainage for Lymphedema of Extremities. S. A. Zieman.—p. 328.
Congenital Anomalies of Testicle. O. S. Lowsley and E. Porras.—p. 332.
Agnogenic Myeloid Metaplasia of Spleen: Follow-Up After Splenectomy. H. L. Skinner and L. J. Sophian.—p. 343.
Diverticula of Small Intestine: Report of Case of Jejunal Diverticulum. L. P. River and J. Silverstein.—p. 347.
Factors Related to Avoiding Colostomy for Lesions of Rectosigmoid. R. R. Best.—p. 352.
Some Observations on Convergence. J. A. Van Heuven.—p. 357.
Suprapubic Transvesical Prostatectomy with Primary Closure of Bladder: Improved Technic and Latest Results. T. Hryntschak.—p. 366.

Reestablishing Lymph Drainage in Lymphedema.—Zieman describes a simple, nonmutilating method of reestablishing lymph drainage in an extremity subject to lymphedema. It consists of subcutaneous implanting of one or more lengths of nonabsorbable suture longitudinally along the extremity and across the region of lymphatic obstruction. This in effect creates a new channel through which lymph can drain. The suture (no. 1 nylon) is introduced through the bore of a no. 19 or no. 20 gage needle 17.7 to 30.4 cm. in length that has previously been inserted subcutaneously along the desired path. The needle is withdrawn, and the suture is left in place. The ends of the suture are cut so that they retract 0.6 cm. under the surface of the skin. Following the implantation, the extremity is elevated and wrapped with an elastic bandage. The author has used the method in lymphedema of the arm following radical mastectomy, lymphedema of the leg due to invasion of the inguinal nodes by a Hodgkins infiltrate, and lymphedema of the penis and scrotum. He reports rapid and painless reduction in the size of the affected member.

Journal-Lancet, Minneapolis

71:83-124 (March) 1951

Allergy in Children and Antihistamines. A. V. Stoesser.—p. 83.
Use of Antibiotics in General Practice. D. R. Nichols.—p. 88.
Fractures Requiring Open Reduction. A. E. Culmer.—p. 91.
Rheumatism—Unitary Conception and Control by Modern Methods. M. G. Good.—p. 93.
Diagnosis and Treatment of Usual and Unusual Anorectal Abscess. L. F. Sherman, R. J. Tenner and H. W. Christianson.—p. 97.
*Carcinoma of Gallbladder and Extrahepatic Bile Ducts. N. E. Wood. —p. 101.

Carcinoma of Gallbladder and Bile Ducts.—Carcinoma of the gallbladder constitutes about 3% of all malignancies, and carcinoma of the bile ducts, about 3½%. In women carcinoma of the gallbladder may constitute 8 to 10% of all malignancies. Both types of carcinoma tend to occur in the older age groups. Adenocarcinoma is the commonest pathological type. It may be papillomatous or diffusely infiltrating in form. Mucus-producing and squamous carcinoma also occur. Gallstones are found in 80 to 100% of cases of gallbladder carcinoma and in a somewhat lesser percentage of cases of duct carcinoma. From 4 to 5% of patients with gallstones eventually have carcinoma of the gallbladder. The clinical picture of carcinoma of the gallbladder and ducts is extremely variable, and the patient may have a long history suggestive of benign biliary tract disease. The treatment of these lesions is disappointing; the survival rate is extremely low. The only hope for decreasing deaths from carcinoma of the gallbladder is by cholecystectomy before carcinoma develops in patients with gallstones.

Journal of Neurophysiology, Springfield, Ill.

14:85-176 (March) 1951

Defects in Regulatory Mechanisms of Autonomic Function in Injuries to Spinal Cord. L. J. Pollock, B. Boshes, H. Chor and others.—p. 85.
Changes in Excitability of Cerebral Cortex Following Single Electric Shock Applied to Cortical Surface. Hsiang-Tung Chang.—p. 95.
Autogenetic Modulation of Excitability of Single Ventral Horn Cells. R. Granit and G. Ström.—p. 113.
Organization of Diffuse Thalamic Projection System. T. E. Starzl and H. W. Magoun.—p. 133.
Mechanism of Accommodation and Tone of Urinary Bladder. L. L. Langley and J. A. Whiteside.—p. 147.
Relation of Temperature of Cerebral Cortex to Spreading Depression of Leão. W. H. Marshall, C. F. Essig and S. J. Dubroff.—p. 153.
Strychnine Facilitation of Pressor Responses Evoked from Cerebral Cortex. E. C. Hoff, H. G. Langford, J. W. Vester and others.—p. 167.

Journal of Thoracic Surgery, St. Louis

21:217-324 (March) 1951

*Importance of Extrapleural Pneumothorax in Collapse Therapy of Pulmonary Tuberculosis. J. W. Cutler.—p. 217.
Pathology of Pleural Sclerosis: Study Related to Loss of Expansivity of Lungs and Its Treatment. O. C. Croxatto and R. Sampietro.—p. 259.
*Use of Streptokinase-Streptodornase in Treatment of Postpneumonic Empyema. W. S. Tillett, S. Sherry and C. T. Read.—p. 275.
Monostotic Fibrous Dysplasia of Bone: Report of Case Involving Three Contiguous Ribs Treated by Wide Resection of Thoracic Cage. F. M. Flickinger.—p. 298.
Heterotopic Gastric Mucosa in Esophagus with Ulceration and Stricture Formation. L. H. Bosher Jr. and F. H. Taylor.—p. 306.
*Anomalous Bone of Lung Arising from Esophagus. S. L. Gans and W. J. Potts.—p. 313.
Report of Two Cases of Anomalous Origin of Right Subclavian Artery from Descending Aorta. W. C. Sealy.—p. 319.

Extrapleural Pneumothorax in Pulmonary Tuberculosis.—Of 129 extrapleural pneumothorax operations in 121 patients (eight bilateral operations), 91 were successful and 22 were unsuccessful. There were 17 (13.2%) operative deaths. Most of the poor results and deaths occurred before antibiotics and certain technical improvements were evolved. Moreover, some patients were in such poor condition that no therapy could succeed. Exclusion of such patients might reduce the mortality to less than 4% and operative failures to less than 5%. Extrapleural pneumothorax is indicated in patients with advanced bilateral fibroulcerative tuberculosis who fail to respond to bedrest or sanatorium care and in whom pneumothorax, pneumoperitoneum, or phrenic nerve interruption cannot be instituted or have failed. It is indicated also in those in whom thoracoplasty is too hazardous but who are still in fair general health. In elderly patients with positive sputum, extrapleural pneumothorax is often the only means of rendering the sputum negative. Patients with active disease and positive sputum who have hilar cavities, uncontrolled pulmonary hemorrhage, or who are pregnant, may recover when treated with extrapleural pneumothorax. Young women, in whom thoracoplasty involves psychic trauma, can frequently be helped with extrapleural pneumothorax. This operation lost favor largely because of postoperative complications and poor late results, but close attention to detail and modern drug therapy insure its success. It should not be undertaken lightly, however, as the postoperative management is more difficult than in thoracoplasty. Important innovations in extrapleural pneumothorax technique are that the mesial aspect of the lung should not be stripped from the mediastinum, but stripping from the remainder of the chest wall should be extensive; a small paravertebral incision should be followed by airtight closure, and plombage should not be done immediately, but, later, filling the extrapleural space with mineral oil may be desirable. Streptokinase and streptodornase are helpful in the management of postoperative extrapleural fluid coagulum.

Streptokinase-Streptodornase in Postpneumonic Empyema.—Tillett and associates used streptococcic concentrates containing streptokinase and streptodornase (also referred to as SK-SD) in the treatment of 25 cases of empyema following acute pneumonia. In 14 of the cases, the pretreatment cultures were sterile, and in seven they were positive, yielding pneumococci, Streptococcus viridans, anaerobic streptococci, mixed floras, and Escherichia coli. Twenty-one patients were treated medically with systemic antibiotic therapy, intrapleural injections of solutions of streptokinase and streptodornase and aspiration of exudate with and without intrapleural administration of antimicrobial agents. Four patients were treated with closed thoracotomy combined with enzymatic instillations. Enzymatic therapy was employed in the presence of thick loculated exudates not amenable to satisfactory removal by aspiration, the persistence of bacteriologically demonstrable infection, or a combination of both factors. The contents of sterilized, lyophilized ampules containing mixtures of streptokinase and streptodornase in powdered form were put in sterile physiological saline and promptly injected, since deterioration of the enzymes occurs rapidly after the solution has been made. One cubic centimeter of solution contained approximately 10,000 and 40,000 units of the two substances, respectively, and as much as could be retained was injected. In 18 of 21 patients, including three with the putrid type of empyema, the liquefying action of the enzymes was followed by rapid termination of the disease by crisis or by immediate improvement followed by subsequent progressive defervescence. Lytic enzymatic therapy made possible within 24 hours the extensive evacuation of the loculated encapsulated empyemal cavities, and this was followed by increasing reexpansion of the underlying lung. When infection was demonstrable, the enzymatic débridement was followed by rapid sterilization.

Anomalous Lobe of Lung Arising from Esophagus.—An anomalous lobe of lung communicating with the esophagus by means of a bronchuslike tract was found in the chest of an infant and was successfully removed by operation. The pathological diagnosis in this case was ectopic bronchus and lung originating from the esophagus, and chronic pneumonia. The embryologic origin of the esophagus and respiratory system from the gut is briefly reviewed. The primordia of the different parts of the respiratory system and esophagus develop within a mass of mesenchyme, which later becomes the mediastinum. It is not difficult to explain most of the congenital anomalies that take place in this region on the basis of the embryologic background.

New Orleans Medical and Surgical Journal

103:365-410 (March) 1951

SYMPOSIUM ON TRAUMA

Primary Treatment of Acute Hand Injuries. D. C. Riordan.—p. 365.
Severe Injuries of Knee Joint: Diagnosis and Treatment. H. D. Morris. —p. 371.
Nonpenetrating Abdominal Trauma. C. C. Craighead and C. J. Miangolarra.—p. 375.
Granular Cell Myoblastomas: Report of Three Cases. W. W. Ogden and A. J. Hertzog.—p. 378.
*Evaluation of Banthine in Ulcer Management. G. McHardy, D. C. Browne, E. Edwards and others.—p. 380.
Treatment of Duodenal Ulcers with Banthine: Study of 40 Cases. J. E. Holoubek, A. B. Holoubek and R. B. Langford.—p. 386.
Complete Avulsion of Optic Nerve at the Disc: Case Report. J. W. Rosenthal.—p. 388.
Pantopaque Myelography in Ruptured Intervertebral Disk: Correlation with Operative Findings. R. W. Levy, A. R. Payzant and H. H. Karr. —p. 390.
Acute Myelogenous Leukemia: Report of Case Receiving 214 Blood Transfusions and with Development of Hemosiderosis. P. B. Johnson, J. J. Signorelli and P. Pizzolato.—p. 393.

Banthine® in Ulcer Management.—The bromide salt of beta-diethylaminoethyl-xanthene-9-carboxylate-methobromide (banthine® bromide) was given to 162 patients, 112 men and 50 women, whose average age was 43 years and who had uncomplicated duodenal ulcers. A schedule of 50 mg. of the drug at six-hour intervals was adopted during the day, 150 to 200 mg. at bedtime, and 100 mg. six hours thereafter. This regimen with minor individual adjustments was achieved in 82% of the patients and was deemed adequate for symptomatic relief, gastric secretory inhibition, and suppression of gastric hypertonicity. When radiologic evidence of ulcer healing appeared it was considered permissible to begin a dose of approximately one-half the therapeutically effective dose. This maintenance dose is considered necessary to prevent recurrence, since no etiologic factor is eradicated. With this schedule 136 patients were completely relieved from pain within an average of 38 hours; 12 had less intense and less frequent discomfort; 11 claimed no pain relief, and three patients had complications. Nocturnal waking pain, present in 116 patients, was relieved in all but seven instances. Nausea and vomiting, which occurred in 86 patients, was relieved in all but one. Pyrosis, present in 32 patients, was not improved, and 54 additional complaints of pyrosis were precipitated by the drug. Other side effects were objectionable salivary suppression, occurring in 78 patients, significant mydriasis in eight patients, dysuria in 13 patients, constipation without dyschezia in 102 and with dyschezia in 36, and mild vertigo and weakness in six. A curarelike reaction was observed in one instance. Roentgenologic evaluation at three month intervals suggested a beneficial effect but was not conclusive. In view of the fact that the authors' patients had no supplemental diet or medication, the response to banthine® bromide was impressive. The drug is to be considered an effective adjunct to but not a substitute for basic ulcer management. A longer follow-up is necessary for complete evaluation, because recurrences may occur at any time. It is probable that one can now control hypertonicity as a factor in ulcer occurrences and recurrence.

Quart. Bull. Sea View Hospital, Staten Island, N. Y.

12:1-46 (Jan.) 1951

*Fate of Infants Born of Tuberculous Mothers. B. Ratner.—p. 1.
Pneumonectomy in Treatment of Pulmonary Tuberculosis. D. Meyers and A. M. Silver.—p. 10.
Tuberculous Meningitis. J. Dolgin, A. A. Jaworski and A. Gordon. —p. 21.
Fatal Mercurialism in Tuberculosis. T. T. Fox and J. C. Weaver.—p. 41.

Infants Born of Tuberculous Mothers.—Fifty-five infants born of tuberculous mothers between 1943 and 1945 are reported on. Twenty-four (44%) infants were premature, and 31 (56%) were full term infants. The incidence of prematurity is exceedingly high in the offspring of tuberculous mothers, ranging from 23 to 64%, depending on the severity of the disease in the mother. The prematurity is related to the severity of the disease in the mother not because of the tuberculous infection but because of the poor nutritional status of the mother. The infants were immediately removed from contact with the mothers. Four infants died within the first 24 hours. Necropsy was performed, but none showed evidence of tuberculosis. Despite the handicap of prematurity that characterized 20 of the remaining 51 children, all survived. A standard diet of evaporated milk, dextri-maltose® with the supplementation of ascorbic acid, percomorph oil, and calcium caseinate given the premature as well as the full term infants resulted in a growth pattern and development comparable to that observed in premature and full term infants born of healthy mothers. About one-third of the infants were followed up for about two years. Results of Mantoux tests were negative, as were results of roentgenologic examination, when the infants had reached the age of 2. In infants separated from their tuberculous mothers at birth who continue to remain in an environment free of tuberculosis the disease does not develop. Although congenital tuberculosis does undoubtedly occur, the author did not observe a single case of transplacental tuberculosis in a series of 260 infants born of tuberculous mothers, even though 17.6% of the mothers died of advanced tuberculosis shortly after delivery.

Review of Gastroenterology, New York

18:159-230 (March) 1951

Bleeding Peptic Ulcer. E. F. Lewison.—p. 167.
Jejunum Histopathological Studies Through Surgical Biopsy in Case of Tropical Sprue in Relapse. F. Milanés, P. León and A. Causa. —p. 182.
Prevention of Some Postgastrectomy Difficulties by New Gastrectomy Technic. M. E. Steinberg.—p. 193.
Gastrointestinal Complications Following Pelvic Operations. B. J. Ficarra.—p. 203.
Role of Sulfonamides and Antibiotics in Treatment of Perforated Peptic Ulcers. R. P. Reynolds, M. O. Cantor and C. Stebbins.—p. 207.
Protective and Restorative Therapy of Acute Liver Diseases. L. Villa. —p. 210.

Rhode Island Medical Journal, Providence

34:117-176 (March) 1951

Complications of Gastric Operations. O. F. Smith.—p. 133.
Cancer of Lung. J. G. Scannell.—p. 136.
Medical Aspects of Atomic Explosions. E. K. Landsteiner.—p. 139.

South Dakota Journal of Medicine, Sioux Falls

4:59-76 (March) 1951

Treatment of Convalescent Poliomyelitis. E. C. Elkins.—p. 59.

Surgery, St. Louis

29:323-482 (March) 1951

Effect of Vasodilator Drugs on Circulation of Extremities. D. C. Elkin and F. W. Cooper Jr.—p. 323.
*Experiences with Ligation and Heparin in Thromboembolic Disease. I. S. Ravdin and C. K. Kirby.—p. 334.
Division of Popliteal Vein in Deep Venous Insufficiency of Lower Extremities. G. de Takats and G. W. Graupner.—p. 342.
Acute Massive Venous Occlusion of Lower Extremities. J. R. Veal, T. J. Dugan, W. L. Jamison and R. S. Bauersfeld.—p. 355.
Ambulatory Venous Pressure Studies in Postphlebitic and Other Disease States. P. T. DeCamp, J. A. Ward and A. Ochsner.—p. 365.
Deep Vein Valves: Venographic Study in Normal and Postphlebitic States. J. C. Luke.—p. 381.
*Raynaud's Disease: Study of Criteria for Prognosis. A. Blain III, F. A. Coller and G. B. Carver.—p. 387.
Method of Dealing with Arteriosclerotic Popliteal Aneurysms. J. M. Janes and J. C. Ivins.—p. 398.
*Surgical Management of Secondary Hypersplenism. J. W. Lord Jr. —p. 407.
Experimental Studies of Frozen Homologous Aortic Graft. R. A. Deterling Jr., C. C. Coleman Jr. and M. S. Parshley.—p. 419.
Method of Producing Coarctation of Aorta in Growing Animal. F. Gerbode and H. Hultgren.—p. 441.
Cardiac Massage in Operating Room Deaths. C. E. Nelson, M. A. Baba and H. G. Burden.—p. 452.
Failure of Double Jejunal Lumen Gastrojejunal Anastomosis to Protect Against Histamine-Provoked Ulcer. J. J. Van Geertruyden.—p. 459.
Original Drainage Apparatus for Ileostomies and Fistulas. A. Hurwitz. —p. 463.
Theoretical Hazards in Treatment of Pathologic Fractures by Kuntscher Intramedullary Nail. L. F. Peltier.—p. 466.

Ligation and Heparin in Thromboembolic Disease.—During the five year period terminating Dec. 31, 1949, several methods were used to reduce the incidence of thromboembolic complications in 27,802 surgical patients. Routine measures of prophylaxis included frequent change of position in bed, early ambulation, compression bandages applied before anesthesia and operation and maintained until discharge, deep breathing exercises, prompt replacement of blood loss, avoidance of abdominal distention and of heavy sedation, and prevention of dehydration, electrolyte imbalance, and hypotension. In patients in whom there was an unusual risk of a thromboembolic complication, especially when there was a history of previous embolism, anticoagulants and prophylactic superficial femoral vein ligation were employed. Therapeutic procedures included the following measures: for phlebothrombosis, bilateral superficial femoral vein ligation or anticoagulants; for acute thrombophlebitis, lumbar sympathetic block or anticoagulants; for extension of thrombus proximal to femoral vein, anticoagulants; for suppurative iliofemoral or pelvic thrombophlebitis, ligation of the iliac veins or vena cava; for pulmonary infarction without dyspnea, bilateral superficial femoral vein ligation or anticoagulants; for massive pulmonary embolism, heparin, 50 mg. given intravenously at once. Atropine, papaverine, oxygen, and morphine were also given. Despite efforts to reduce their incidence, thromboembolic complications occurred in approximately 1% of patients after operation. Phlebothrombosis and thrombophlebitis occurred in 0.65%, nonfatal pulmonary infarction in 0.205%, and fatal pulmonary embolism in 0.11% of the patients. The incidence of fatal pulmonary embolism probably can be reduced only by effective mass prophylaxis, by a clearer understanding of the factors causing venous thrombosis, or by the development of tests that indicate incipient thrombosis so that effective therapy can be instituted.

Raynaud's Disease.—Blain and associates propose the adoption of the terms "Raynaud's disease" and "Raynaud's syndrome" as substitutes for the terms "primary Raynaud's phenomenon" and "secondary Raynaud's phenomenon" in the belief that this will simplify the classification of the disorders under discussion. Raynaud's disease is the primary and idiopathic form of the phenomenon of paroxysmal spasm of the digital arteries, producing acral ischemia and cyanosis of the digits, bilaterally and symmetrically, in response to cold and emotions; it is usually relieved by warmth. In its severe form there is a recurring, painful spasm, narrowing the local vessels, deforming the digits (usually the fingers), and leading to local ulceration and necrosis. The disease is frequently seen in young women who show other evidence of vasomotor instability. Raynaud's syndrome is always the result of some underlying vascular or other disease. Commonest of the underlying diseases are the obliterative vascular diseases (arteriosclerosis obliterans and thromboangiitis obliterans), the collagen diseases (scleroderma, rheumatoid arthritis, dermatomyositis), thermal injury (frostbite and burns), mechanical trauma (use of vibrating tools, such as the pneumatic hammer), and the Naffziger syndrome (cervical rib and scalenus anticus syndrome). Raynaud's syndrome may also result from lesions of the central nervous system. The prognosis of true Raynaud's disease was studied in 100 patients, who had been followed for at least five years. One-fourth progressed to a point of tissue loss (ulceration, necrosis, and superficial gangrene) or to a point at which pain and other symptoms caused sufficient disability for the patients to submit to sympathectomy. In most of the remaining three-fourths of the cases the disease ran a benign chronic course for from five to 55 years. The one-fourth classified as severely progressive cases were characterized oftenest by an onset of symptoms between the ages of 15 and 30 years and rapid progression. Cases in which attacks can be precipitated only by cold or in which functional factors are not particularly prominent, especially if the onset of the disease is before the age of 15 or after the age of 35, are not likely to progress to tissue loss or the need for operation. The majority of patients undergoing dorsal sympathectomy by techniques used in the past will obtain at least temporary relief of symptoms. It is believed that more patients will obtain permanent relief following the radical postganglionic sympathectomies now performed. Clinical observations uphold the theory that Raynaud's disease is due to both a local fault in the digital vessels and superimposed abnormal vasomotor tone.

Surgical Management of Secondary Hypersplenism.—Idiopathic thrombopenic purpura and congenital hemolytic icterus are two of the most notable examples of primary hypersplenism. Splenectomy is usually beneficial in both conditions. In secondary hypersplenism, first the spleen is enlarged; second the bone marrow must be normally active or hyperactive; third there is evidence in the peripheral blood of a reduction below normal of one or more or all of the cellular elements, and fourth there must be some primary disease entity, with involvement of the spleen either directly or indirectly. Splenectomy in properly selected cases is frequently followed by worthwhile improvement in the peripheral blood, although the course of the primary, basic disease may not be influenced significantly. Blakemore, Whipple, and Rousselot have developed satisfactory shunting procedures for the relief of portal hypertension on both an intrahepatic and an extrahepatic basis. In patients with secondary hypersplenism due to a congestive splenomegaly (portal hypertension), great benefit may be derived by combined splenectomy and splenorenal shunt. Five illustrative cases are presented.

Tennessee State Medical Assn. Journal, Nashville

44:89-126 (March) 1951

Use of Radioactive Isotopes in Otolaryngology. H. Duncan.—p. 89.

West Virginia Medical Journal, Charleston

47:69-106 (March) 1951

Common Respiratory Diseases of Infants and Children. E. H. Baxter. —p. 69.
Economic Need for Adequate Public Health Program in West Virginia. B. M. Drake.—p. 78.
Significance of Ascites. K. Nelson.—p. 81.
Endaural Operation for Chronic Mastoiditis. J. M. Smith.—p. 86.

FOREIGN

Acta Radiologica, Stockholm

34:423-560 (Dec.) 1950. **Partial Index**

Cancer of Breast: Results of Treatment, 1929-1943. J. Saugmann-Jensen and P. Jacoby.—p. 453.
Distribution of Gas in Intestine Following Laparotomies Unaccompanied by Complications. N. Liedberg and S. Berglund.—p. 493.
*Value of Total Population Roentgen Chest Survey in Campaign Against Tuberculosis. L. Lönnerblad.—p. 501.
*Tolerance Dose Problems in Radiological Work. P. B. Hansen and C. B. Madsen.—p. 519.
Attempt of Excreting Injected Thorotrast in Rabbits by 2,3-Dimercaptopropanol (BAL). B. E. W. Nordenström-Blomqvist.—p. 533.

Mass Chest Surveys for Tuberculosis.—Lönnerblad feels that case finding by means of chest photofluorography of the entire population is not likely to reduce the incidence of tuberculosis greatly. As causes for this failure he mentions the relatively poor results of present therapeutic measures, even in the early stages of pulmonary tuberculosis and the fact that it is not economically feasible to isolate effectively all persons with arrested or intermittently open tuberculosis of the lungs. Moreover, in persons infected with pulmonary tuberculosis between x-ray surveys a rapidly progressive process may unexpectedly develop and so there is time for a significant number of persons to be infected before the diagnosis is established. The author concludes that without more effective economic aid to persons with tuberculosis and to susceptible groups of the population and without widespread BCG inoculation, photofluorographic examinations can hardly produce the desired results.

Tolerance Dose in Radiologic Work.—Hematological examinations and measurements of the exposure to ionizing irradiations of the personnel in the radium and roentgen departments of the hospital in Aarhus, Denmark, disclosed that the tolerance dose, which so far was supposed to be 100 milliroentgens per day, is fairly close to the limit of tolerance of the hematopoietic system. Since there is a risk of other harmful effects of exposure to this amount of radiation, it is suggested that 100 milliroentgens should be regarded as the maximum permissible exposure per week rather than per day.

Archives of Disease in Childhood, London

26:1-96 (Feb.) 1951

Dietetic Approach to Coeliac Affection. W. G. Wyllie, W. W. Payne and D. W. Beynon.—p. 4.
Alimentary Lesion in Anaphylactoid Purpura. C. L. Balf.—p. 20.
Studies of Cerebrospinal Fluid Circulation in Tuberculous Meningitis in Children: II. Review of 100 Pneumoencephalograms. J. Lorber.—p. 28.
Pyloric Stenosis in Twins. B. W. Powell and C. O. Carter.—p. 45.
*Pyloric Stenosis in Four First Cousins. C. O. Carter and T. R. Savage. —p. 50.
Two Cases of Adrenal Hyperplasia with Adrenal Cortical Insufficiency. N. E. France and C. A. Neill.—p. 52.
Enterogenous Cyst Causing Congenital Intestinal Obstruction. E. W. Parry.—p. 62.
Haemopoiesis and Siderosis in Foetus and Newborn. F. A. Langley. —p. 64.
Neurofibromatosis Presenting as Macroglossia. J. J. Kempton and C. Latto.—p. 76.
Tuberculous Pericarditis. R. M. Todd.—p. 78.
Tuberculous Ischio-Rectal Abscess and Primary Pulmonary Tuberculous Complex in Five-Months-Old Infant. B. Gans.—p. 84.
Bile Pigments in Stools of Infants. S. D. V. Weller.—p. 86.
Subcutaneous Fat Necrosis of Newborn. A. Holzel.—p. 89.

Pyloric Stenosis in Four First Cousins.—There is evidence that genetic factors play some part in the causation of pyloric stenosis. Identical twins appear to be more often both affected than fraternal twins of like sex, and the incidence in brothers and sisters of children with pyloric stenosis is higher than in the general population. A family of 11 brothers and sisters is described, five of whom have had children. Of these, four have had a child with pyloric stenosis in which the diagnosis was confirmed at operation. This family provides additional evidence that genetic factors are in part responsible for the condition.

Arch. Urug. Med. Cir. y Espec., Montevideo

37:245-338 (Sept.) 1950. **Partial Index**

*Cancer of the Stomach in Uruguay. P. Larghero Ybarz, I. Carrera, H. Cardeza and R. Minatta.—p. 275.

Cancer of the Stomach.—Gastric cancer is responsible for 25% of all deaths from cancer in Uruguay. The authors report on 125 cases of gastric cancer. Sixty-five were treated by resection; the remainder were inoperable. The procedure of choice was an enlarged regional gastrectomy, either total or subtotal, including resection of all the regional chains of lymph nodes. The type of gastrectomy and the route of approach depended on the site and extension of the cancer. The authors favored subtotal gastrectomy. The abdominal route was preferred for total gastrectomy, while the transthoracic route was chosen for resection of the cardia and the fundus of the stomach. Splenectomy was often indicated. Total gastrectomy was performed on 12 patients and subtotal gastrectomy on 53. Of the 12 patients who had total gastrectomy six died within the first week (50% operative mortality). Four died between three months and one year after the operation. Two patients are living, four and 32 months, respectively, after the operation. Transthoracic gastrectomy was performed in six patients (two total and four subtotal gastrectomies). Three patients died (50% operative mortality), one from peritoneal cancer a few months after the operation, and two patients are living, two and three years after the operation, respectively. In the 49 cases in which subtotal gastrectomy was done by the abdominal route the postoperative mortality was 21.4%. Although nearly all the patients in these groups were first seen in an advanced period of cancer, 50% of them were living between one and four years after the operation; only six in the whole group are living five years after the operation.

British Journal of Dermatology, London

63:83-122 (March) 1951

Basic Concepts in Production and Management of Psychosomatic Dermatoses—I. F. E. Cormia.—p. 83.
Some Clinical and Histopathological Notes on Pseudoxanthoma Elasticum. P. W. Hannay.—p. 92.
Indeterminate Leprosy: New Clinical Variety. G. H. Findlay.—p. 100.
Recurrent Bullous Eruption of Feet. S. T. Anning.—p. 104.

British Journal of Radiology, London

24:119-180 (March) 1951. **Partial Index**

Histological Changes in Irradiated Carcinoma of Breast. I. G. Williams and G. J. Cunningham.—p. 123.
Low Voltage X-Ray Therapy with Beryllium Window Tube. A. Green, W. A. Jennings and R. F. Hendtlass.—p. 134.
Some Observations and Problems of Treatment with Radioactive Iodine I^{131}: Report upon Case of Carcinoma of Thyroid with Metastases Treated by this Method. G. F. Green, J. F. Tait and R. Worsnop. —p. 148.
Diastematomyelia with Vertebral Column Defects: Observations on Its Radiological Diagnosis. T. N. Cowie.—p. 156.
*Consideration of Certain Sources of Error in Diagnosis of Gastric Ulcer. E. D. Palmer.—p. 161.

Errors in Diagnosis of Gastric Ulcer.—Observations on 30 patients in whom errors were made in the positive or negative diagnosis of gastric ulcer demonstrated the complementary functions of roentgenography and gastroscopy in the diagnosis of gastric disease. In only one of the misdiagnosed cases did the roentgenographic and gastroscopic diagnoses agree in the error. The diagnostic errors were correlated with the failure of the two methods to corroborate each other. The greatest number of errors occurred in lesions on the lesser curvature of the antrum. This region of the stomach presents most difficulties to both x-ray and gastroscopic interpretation. To the radiologist it is often an area of confusing dynamic deformities and to the gastroscopist it often constitutes an entirely blind area. In cases of lack of conformity between gastroscopic and roentgenologic diagnosis, careful evaluation is necessary before radical treatment is instituted. As a rule, the more serious diagnosis should be considered as the correct one.

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:489-542 (March 10) 1951

The Hunterian Heritage. M. Page.—p. 489.
Relation of Shock, Carbohydrate Utilization, and Cortisone to Mitotic Activity in Epidermis of Adult Male Mouse. H. N. Green and F. N. Ghadially.—p. 496.
Shock and Neoplasia. H. N. Green and M. Savigear.—p. 498.
Chemotherapy in Cholera. S. C. Lahiri.—p. 500.
Incidence and Prevention of Tetanus Among Civilians. E. T. Conybeare and W. P. D. Logan.—p. 504.
Spontaneous Intraperitoneal Rupture of Bladder in Puerperium. A. L. Deacon.—p. 508.
Aureomycin and Chloramphenicol in Chancroid. R. R. Willcox.—p. 509.

Canadian Medical Association Journal, Montreal

64:187-284 (March) 1951

*Allergy to Aspirin. C. H. A. Walton and H. W. Bottomley.—p. 187.
*Rheumatic Fever Treated with Cortisone and ACTH. J. D. Keith and C. A. Neill.—p. 193.
Prevention of Recurring Manic-Depressive Illnesses. G. H. Stevenson. —p. 198.
Surgical Treatment of Chronic Ulcerative Colitis. W. C. MacKenzie. —p. 200.
*Internal Mammary Coronary Anastomosis in Surgical Treatment of Coronary Artery Insufficiency. A. Vineberg and G. Miller.—p. 204.
Amniotic Fluid Embolism. J. M. Finlay and H. J. Barrie.—p. 210.
Considerations in Occupational and Industrial Dermatoses. M. Beaudry.—p. 213.
Barriers to Surgery in Mitral Stenosis. L. D. Wilcox and A. J. Grace. —p. 218.
Clinical Results of Prefrontal Lobotomy (Leucotomy). G. H. Stevenson and H. D. Wilson.—p. 222.
Hypertension in Two Cases of Renal Artery Occlusion. L. J. Adams, M. Notkin and J. E. Pritchard.—p. 224.
Patients with Emotional Difficulties. F. W. Hanley.—p. 228.
Barbiturate Poisoning Treated with Modified Electrotherapy. C. Pinch and J. J. Geoghegan.—p. 233.
Use of Trichlorethylene in Obstetrical Analgesia and Anaesthesia. J. J. Scales and R. F. Ohlke.—p. 235.
Relationship of Fibrinogen B to Thromboembolic Phenomena. E. A. Ryan.—p. 237.
Primary Carcinoma of Liver. C. B. Ripstein and G. G. Miller.—p. 240.
Suture-Ligation of Patent Ductus Arteriosus in Infancy. W. T. Mustard.—p. 243.
Intrathoracic Tumours. R. C. Laird.—p. 244.

Allergy to Aspirin.—The drug most commonly causing severe allergic reactions is acetylsalicylic acid (aspirin). The most frequent symptom is asthma, but urticaria, angioneurotic edema and rhinitis are fairly common. The occurrence of definite sensitivity to acetylsalicylic acid was observed in 22 of 830 patients with asthma. All 22 patients manifested asthma when given small amounts of acetylsalicylic acid. Several also had urticaria, angioneurotic edema, and rhinitis. In addition, three were allergic to antihistamines. All the patients were adults, seven men and 15 women, between the ages of 27 and 64. Half of them had a severe degree of asthma as compared to only 13% of the entire group of 830. Five of the 22 patients died in the four year study period. Necropsy was performed in three, who showed the characteristic changes of fatal bronchial asthma. Clinical reactions to acetylsalicylic acid are usually violent and rapid.

Cortisone and ACTH in Rheumatic Fever.—Twenty-three children between the ages of 3 and 14 with rheumatic fever were treated with either cortisone or pituitary adrenocorticotropic hormone (ACTH). Cortisone was administered twice daily. The total daily dose was 100 to 200 mg. in 24 hours. Pituitary adrenocorticotropic hormone was given every four hours in a total daily dose of 40 to 80 mg., depending on body weight. Most children were treated for four to six weeks. When evidence of a relapse occurred, treatment was resumed and continued for two to three additional weeks. Fever and arthritis were promptly relieved. The sedimentation rate was restored to normal in most patients in three weeks. There was an increase of body weight by an average of 1½ lb. (0.73 kg.) a week during treatment. Gallop rhythm frequently disappeared. Subcutaneous nodules disappeared in approximately three weeks in three patients. Choreiform movements ceased in three weeks in four cases. There was usually an appreciable rise in hemoglobin and hematocrit during treatment. There was no significant change in heart murmurs. Changes in heart size were not significantly different from those observed in children treated with bed rest and salicylates. The sedimentation rate frequently rose after administration of the hormone was discontinued, but usually the rise was transient. In other cases administration of the drug had to be resumed for an additional period. Patients with chronic heart failure were not improved by such treatment, and in one patient the failure became more pronounced during treatment. Two patients with acute heart failure in the first attack of rheumatic fever were quickly and dramatically improved when hormone therapy was instituted.

Surgical Treatment of Coronary Artery Insufficiency.—When the internal mammary artery of a dog is experimentally implanted into the ventricular myocardium it forms new arterial branches that anastomose with the left coronary circulation. When this occurs the heart is protected against infarction following the ligation of the anterior descending branch of the left coronary artery. Those animals that survive such a ligation, however, die or an infarction develops when the implanted internal mammary artery is occluded. Thus an internal mammary coronary artery anastomosis has functional value in relieving artificially produced coronary artery insufficiency. These experiments suggest that an internal mammary artery implant may be valuable in the treatment of human coronary artery insufficiency. The internal mammary artery was implanted in the ventricular myocardium of three patients with coronary artery insufficiency, who were carefully selected and treated by a medical-surgical team. The use of quinidine preoperatively and postoperatively and of procaine hydrochloride during the operation is important in preventing ventricular fibrillation. The first patient died two and a half days after operation. Death was due to a recent coronary thrombosis, which, according to the authors, developed because of the low blood pressure that was present throughout the operation. Necropsy revealed that the internal mammary artery was completely patent 62 hours after the implantation. Despite the burying of an open vessel in the myocardium, there was no evidence of hemorrhage or intramural hematoma. In the two other patients the blood pressures were maintained above 100 mm. of mercury throughout the operation by means of a continuous intravenous drip of phenylephrine (neo-synephrine®) hydrochloride. Both patients recovered and appeared to have been improved at the time of discharge. It is still too early for definite evaluation of the operative results.

Deutsche medizinische Wochenschrift, Stuttgart

76:229-260 (Feb. 23) 1951. **Partial Index**

Menstruation Cycle and Ovulation: Uncertainty of Computation of Fertile Period and Hormone Therapy. H. Franken.—p. 229.
Criticism of Treatment of Climacteric Secondary Phenomena with Ovarian Hormone. H. R. Schmidt-Elmendorff.—p. 232.
Study of Homologous Serum Hepatitis. K. Franke and G. A. Raven. —p. 234.
*Psittacosis and Its Treatment with Aureomycin: New Experiences Gained in Small Epidemic. H. Hamke.—p. 246.

Aureomycin in Psittacosis.—Eight cases of psittacosis, six of them occurring in two families, are reported. The patients were between the ages of 21 and 48. The infection was transmitted by parrots bred in Germany. The course of the disease was moderately severe or severe in seven patients and mild in the youngest patient. One patient died. All patients had the characteristic symptoms of the disease. Necropsy was performed in the fatal case, and the psittacosis virus was isolated. The complement fixation reaction was strongly positive in four patients and doubtful in three. Treatment with quinine and calcium combined, sulfathiazole, penicillin and streptomycin failed. Three patients were treated with aureomycin. A dose of 500 mg. every four hours was given orally. The total dose administered was 4,000 mg. The temperature was restored to normal within 24 hours, and all patients recovered. The effect of the drug did not depend on the time at which treatment was instituted. The prognosis of psittacosis has been decisively improved by the possibility of treatment with aureomycin.

Edinburgh Medical Journal

57:561-630 (Dec.) 1950

Filariasis. J. H. Bowie.—p. 561.
Surgical Significance of Intestinal Vascular Patterns. J. A. Ross.—p. 572.
Place of Chemotherapy in Treatment of Pulmonary Tuberculosis: Report on 102 Cases. C. Clayson.—p. 580.
Effect of Heparin on Plasma Cholesterol. D. P. Basu and C. P. Stewart. —p. 596.

Gastroenterologia, Basel

76:127-254 (Nos. 3 & 4) 1950/51. **Partial Index**

Gastric Sarcoma, Its Clinical, Roentgenologic and Endoscopic Diagnosis. A. Frank and W. Naumann.—p. 127.
Sequelae After Gallbladder Operations and Their Treatment. R. Boller. —p. 149.
•Relations Between Ulcer Disease and Adrenals: Hormone of Adrenal Cortex, Adrenalin, Sodium Chloride and Histamine in Therapy of Peptic Ulcer. L. Biró and G. Nagy.—p. 169.

Peptic Ulcer and the Adrenals.—The following evidence suggests a relationship between peptic ulcer and the adrenals: 1. Normal functioning of the adrenal cortex is necessary for maintaining the mucous membranes of the gastrointestinal tract in a healthy condition. 2. Twenty per cent of patients dying from Addison's disease have peptic ulcer. 3. Hypotension, one of the most important symptoms of adrenal insufficiency, is also frequent in patients with peptic ulcer. These and other indications induced a number of investigators to treat ulcer patients with desoxycorticosterone acetate. This substance was employed in the 133 ulcer patients reviewed here. Many of these patients had symptoms characteristic of adrenal insufficiency; for instance, 42.1% had asthenia, 50% had low blood pressure and about 60% had a positive reaction to the (Cutler) potassium and water tolerance test. The 17-ketosteroids were determined in 14 ulcer patients, and in 10 the values were abnormal. It was found that treatment with desoxycorticosterone acetate caused rapid disappearance of the peptic ulcer, particularly in patients who had signs of adrenal insufficiency. Treatment with sodium chloride and epinephrine produced similar therapeutic results. There was a parallelism between the healing of the ulcer and the disappearance of the signs of adrenal hypofunction. Extracts of the adrenal cortex are far less efficacious. Histamine treatment is successful mainly in gastric ulcer.

Hospital, Rio de Janeiro

39:165-296 (Feb.) 1950. **Partial Index**

•Cervical Vertebral Syndrome. P. Nava.—p. 195.
•Interesting Clinical Syndrome: Melanodermia, Cirrhosis of the Liver and Diabetes Mellitus. W. Saad Hossne and J. E. Dutra de Oliveira. —p. 275.

Cervical Vertebral Syndrome.—Nava reports on two patients with a malformation of cervical vertebrae that results in contact of two or more spinous processes on extension of the neck (kissing spine). This was associated with local and radiating pain. A similar condition has been described in the lumbar region by Michotte. One of the patients, a woman aged 46, had severe pain in the neck, contraction of the superior and medium bundles of the trapezius, forward projection of the head and limited rotation and flexion of the neck, extension of which was impossible because of stabbing pain. Roentgen examination showed contact of the spinous processes of the fourth, fifth and sixth cervical vertebrae. The other patient, a man aged 54, complained also of pain in the neck radiating to the right shoulder joint and shooting pain in the right arm and hand. Roentgen examination showed contact of the spinous processes of the fourth and fifth cervical vertebrae. These two cases confirm Michotte's observations and establish the existence of a new syndrome of pain in the neck and shoulders, for which the author suggests the name of cervical vertebral syndrome or Michotte's syndrome.

Interesting Clinical Syndrome: Melanoderma, Cirrhosis of the Liver and Diabetes Mellitus.—The case described by the authors is rare. The patient, a girl 14 years old, had from the age of 8 a progressive disease characterized by pigmentation of the skin, hepatic cirrhosis with splenomegalia and diabetes mellitus simulating hematochromatosis. Neither biopsy of the skin nor postmortem examination revealed existence of hemosiderin. The authors concluded that the case was one of cirrhosis of the liver in association with diabetes mellitus and melanoderma of unknown origin. The suprarenal cortex was found to be normal by necropsy.

Journal of Clinical Pathology, London

4:1-128 (Feb.) 1951. **Partial Index**

Review of Modern Methods in Histochemistry. A. G. E. Pearse.—p. 1.
Normal Platelet Count in Man. A. W. Sloan.—p. 37.
Plasmacytosis in Bone Marrow in Rheumatoid Arthritis. F. G. J. Hayhoe and D. R. Smith.—p. 47.
•Emergency Methods for Rhesus Group Determination. J. C. F. Poole and G. C. J. Williams.—p. 55.
Estimation of Dicoumarin in Blood. M. Lubran.—p. 63.
Improved Culture Methods for Detection of Ps. Pyocyanea. E. J. Lowbury.—p. 66.
Excretion of Pregnanediol and 17-Ketosteroids During Menstrual Cycle in Benign Hirsutism. W. H. H. Merivale.—p. 78.

Methods for Rh Group Determinations.—According to Poole and Williams, the most reliable method for Rh group determination is probably the standard tube method. This technique has only one serious disadvantage: it may take as long as two hours to perform, although occasional high avidity anti-D serums will give clearcut results in 30 minutes or less. For emergency Rh typing quicker procedures are desirable. This report compares three methods. In 917 determinations of Rh groups by the Chown capillary tube method, 20 erroneous results were obtained, nine being false positive and 11 false negative. At the same time, observations were made with the standard tube method, which gave no false results in this series. False positive Chown tests appear to be due to rouleau formation when suspensions of cells in serum are used; this can be avoided by the use of saline suspensions. False negative results can be obtained by the Chown test if insufficient time is allowed for the development of a positive result. Factors delaying its appearance are dilution, the use of saline as opposed to serum suspensions and the use of blood specimens more than five days old. A rapid method, which gave no discrepancies in 450 tests carried out concurrently with the standard tube method, consisted of the incubation of the tube for 10 minutes at 37 C. followed by centrifugation for five minutes at 2,000 to 2,500 rpm.

Journal Obstet. & Gynaec. Brit. Empire, Manchester

58:1-100 (Feb.) 1951. **Partial Index**

Antidiuretic Activity of Saline Extracts of Normal and Toxaemic Placentas. F. B. Byrom.—p. 1.
Antidiuretic Substance in Urine During Pregnancy and Its Frequent Association with Bacterial Growth. V. I. Krieger, H. M. Butler and T. B. Kilvington.—p. 5.
Therapeutic Effect of Subsequent Pregnancy in Simmonds' Disease: Case Report. R. Murdoch and A. D. T. Govan.—p. 18.
Geometrics of the Pelvic Outlet. H. C. H. Bull.—p. 22.
•Premature Separation of Normally Situated Placenta Due to Foetal Suicide. J. A. Chalmers.—p. 33.
•Abnormal Lactation. G. L. Foss and D. Short.—p. 35.
Uterovenous and Uterolymphatic Intravasation in Hysterosalpingography. A. Drukman and S. Rozin.—p. 73.
Experiences with Di-Hydro-Ergotamine in Treatment of Primary Uterine Inertia. R. C. Gill and J. M. Farrar.—p. 79.
Bilateral Renal Cortical Necrosis in Obstetric Practice. I. MacGillivray. —p. 92.

Premature Separation of Placenta: Fetal Suicide.—A primigravida, 17, was hospitalized with mild toxemia of pregnancy. With bed rest and sedatives, the blood pressure fell in a few days and the edema disappeared. Discharge from the hospital seemed justified when suddenly, following particularly violent fetal movements, she complained of severe abdominal pain and vaginal bleeding. She was in moderate shock, and the uterus was stony hard and tender. No fetal heartbeat could be heard. After a rapid labor she was delivered of a well-preserved, stillborn fetus, followed immediately by the placenta and a mass of retroplacental clot. The umbilical cord was wrapped once around the right ankle of the child, then twice round the right wrist and once around the right hand. The length of the cord was 23 in. (60.96 cm.) but, because of the turns around the limbs, only 4 in. (10.16 cm.) of cord remained free between the right hand and the placental insertion, which was eccentric. The separation of the placenta was probably due to avulsion of the placenta as a result of traction on the cord by the fetus itself. It seems probable that the mechanism that Duff (1950) described as a possible cause of antenatal separation of the cord has been operative in this case. The mild toxemia may have been associated with some decidual deterioration, which may have made the placenta more liable to separation as a result of traction by the fetus.

Abnormal Lactation.—Five cases of abnormal lactation are reported, one in a young virgin and the rest in women who had borne children. In one case lactation followed hysterectomy, in two there was evidence of pituitary overactivity, and in one there was pituitary deficiency. It is known that nursing may prolong lactation almost indefinitely in women who have previously breast-fed children. Nursing in combination with strong psychogenic stimuli or even psychotic symptoms may initiate lactation in nulliparas or virgins. Possibly, organic brain disease affecting the mesencephalon or hypothalamic nuclei may occasionally be responsible. In another group, endocrine influences, due to pituitary tumors with excessive output of anterior lobe hormones, or adrenal cortical tumors, may stimulate lactation. The only point of possible significance in the 16 year old girl whose case is reported is that the output of 17-ketosteroids had increased. If this is confirmed during further observation it is possible that lactation may be due to pituitary hyperfunction or some hypercorticoid syndrome. The almost complete amenorrhea suggests combinations of endocrine imbalance leading to persistent lactation and uterotubal atrophy.

Klin. Monatsbl. für Augenheilkunde, Stuttgart

118:1-112 (No. 1) 1951. **Partial Index**

The Process of Vision and Visual Substances. G. von Studnitz.—p. 1.
Treatment of Strabismus. F. Hentschel.—p. 23.
Form of Strabismus and Surgical Treatment. H.-F. Piper.—p. 33.
*Eye Complications in Benign Leptospiroses. M. Doret and A. Röhm.—p. 51.
Toxoplasmosis with Special Consideration of Ocular Symptoms. W. Straub.—p. 66.
*Corneal Dystrophy and Cataract as Sequel of Thyroidectomy. H. Pau.—p. 75.

Ocular Complications in Leptospiroses.—The following benign leptospiroses are briefly discussed: (1) harvest, field or mud fever, in which Leptospira grippotyphosa, L. sejroe and L. australis have been isolated; (2) canicola fever (L. canicola) and (3) swineherd's disease (L. pomona). The histories of eight patients are presented in whom ocular symptoms developed, during infection with L. canicola in three cases, L. pomona in four cases and L. australis in one case. Six of the patients had iridocyclitis and two had temporary papilledema. It is assumed that the papilledema was directly connected with the meningitic process that characterized the leptospirosis. The iridocyclitis that develops in the course of leptospirosis may be either a benign form, which heals without sequelae and causes only slight opacities in the vitreous humor, or a more serious form, which is resistant to treatment, causes a great decrease in visual acuity and generally causes a characteristic membranelike opacity in the vitreous. One of the eight patients here reviewed had four successive attacks of iridocyclitis in the course of 18 months. As far as the authors were able to ascertain, this was the first case of this type that occurred in connection with leptospirosis. They also concluded that the severe forms of leptospiroses were the ones most likely to produce ocular symptoms. On the other hand, there was apparently no connection between the occurrence of ocular symptoms and the type of Leptospira.

Corneal Dystrophy and Cataract After Thyroidectomy.—Severe tetany developed in a woman aged 55, who had been subjected to thyroidectomy on account of toxic goiter. Her blood calcium content decreased to 8 mg. per cent, and she had tetanic attacks. Tetanic cataracts became evident six months after operation, and somewhat later parenchymatous opacities of the cornea developed in both eyes with the characteristics of an epithelial corneal dystrophy. Whereas the lenticular opacities were probably the result of lesions of the parathyroids, the inflammation of the cornea was presumably caused by lesions of the thyroid, parathyroids, and cervical sympathetics and by sympathetic changes incident to the menopause.

Lancet, London

1:481-538 (March 3) 1951

Theory of Cerebral Localisation. W. Gooddy and W. McKissock.—p. 481.
*Role of Adrenals in Production of Renal and Cardiovascular Damage by Anterior Pituitary Preparations. H. Selye.—p. 483.
*Female Carrier of Haemophilia: Clinical and Laboratory Study. C. Merskey and R. G. Macfarlane.—p. 487.
Effect of Aminophylline in Emphysema. A. G. W. Whitfield, W. M. Arnott and J. A. H. Waterhouse.—p. 490.
Production of Hypochlorhydria by Beta Radiation of Stomach. D. M. Douglas, W. R. Ghent and S. Rowlands.—p. 492.
Neurological Complications of Undulant Fever: Clinical Picture. A. Nelson-Jones.—p. 495.
Local and General Treatment of Acute Extensive Burns: Open-Air Régime. T. G. Blocker Jr.—p. 498.
Exposure Treatment of Burns. A. B. Wallace.—p. 501.
Alkali-Dissolved Diphtheria Toxoid-Antitoxin Floccules Adsorbed on Aluminum Carriers: Immunisation of Adults. J. H. Mason.—p. 504.
Cumulative Action of Decamethonium Iodine. C. T. Barry, J. Straton and A. R. Sutherland.—p. 507.
Trial of Tween 80 in Patients with Loss of Weight After Partial Gastrectomy. J. Badenoch, S. C. Truelove and J. N. Ward-McQuaid.—p. 508.
Cirrhosis of Liver in Refrigeration Engineer Attributed to Methyl Chloride. M. W. W. Wood.—p. 508.
Use of Transparent Film Envelopes for Syringe Service. J. E. McCartney.—p. 509.
Streptomycin in Postdysenteric Arthritis. R. N. Chaudhuri, H. Chakravarti and M. N. Rai Chaudhuri.—p. 510.

Adrenals in Collagen Disease.—Simultaneous treatment with lyophilized anterior pituitary and cortisone produces the picture of "collagen disease" or "hyalinosis" in the rat, characterized by eventually fatal malignant nephrosclerosis with myocarditis (resembling that seen in acute rheumatic fever) and periarteritis nodosa. Adrenalectomy completely prevents these renal and cardiovascular lesions. It is concluded that the active factor in lyophilized anterior pituitary exerts its principal toxic effects only in the presence of functioning adrenal tissue. The so-called growth hormone, or somatotropic hormone, accurately reproduces the hyalinosis syndrome caused by lyophilized anterior pituitary. This effect of somatrotropic hormone can be inhibited by cortisone but only under conditions that permit the latter to induce pronounced adrenocortical atrophy. Cortisone fails to cause adrenal involution in rats treated with lyophilized anterior pituitary, since the latter is rich in pituitary adrenocorticotropic hormone. This agrees with the view that lyophilized anterior pituitary preparation causes hyalinosis by virtue of the somatotropic hormone it contains and that the pathogenicity of somatotropic hormone depends largely on the functional capacity of the adrenal cortex. In many respects pituitary adrenocorticotropic hormone and the glucocorticoids (such as cortisone), on the one hand, and somatotropic hormone and the mineralocorticoids (such as desoxycorticosterone), on the other, have diametrically opposed effects. Hence, the requirements for pituitary adrenocorticotropic hormone or cortisone in clinical medicine are probably also largely dependent on the presence of somatotropic hormone and of mineralocorticoids in the organism.

Female Carrier of Hemophilia.—A clinical and laboratory study of the female carrier of hemophilia was made in an attempt to confirm the claims that a demonstrable coagulation defect exists in these women. The carriers, as a group, were more liable to abnormal hemorrhage, especially after tooth extraction. Occasional abnormal results were also obtained with laboratory tests for coagulation time and prothrombin consumption during coagulation. These results were too indefinite and inconsistent to be of diagnostic value. The methods at present available for measuring the efficiency of blood coagulation do not seem to be sensitive enough to unmask the relatively slight defect that may be present in the female carrier of hemophilia. In no case in the female carrier group did the clinical history and laboratory observations bear more than a superficial resemblance to hemophilia in the male. In view of the abnormalities found in some of these carriers it is hoped that future work may reveal some constant characteristic that will allow their recognition in early life.

Medical Journal of Australia, Sydney

1:105-136 (Jan. 20) 1951. **Partial Index**

*Aetiology of Diabetes Mellitus. E. Downie.—p. 110.
Pathological Aspects of Diabetes. W. E. King.—p. 113.
Why Diet the Diabetic? B. Hunt.—p. 114.
Diabetic Prevalence in New South Wales. H. O. Lancaster.—p. 117.
Anti-Insulin Factor in Plasma of Diabetic Patients. J. Bornstein and P. Trewhella.—p. 119.

1:137-172 (Jan. 27). 1951. **Partial Index**

Nursery Infections. K. Campbell.—p. 138.
Ovarian Pregnancy, with Report of Case. J. Nattrass.—p. 142.
Methaemoglobinaemia Resulting from Poisoning in Children. W. B. Macdonald.—p. 145.

Etiology of Diabetes Mellitus.—The etiology of diabetes mellitus presents a number of complicated problems. The isolation of insulin, apart from its incalculable value in clinical medicine, stimulated a large amount of clinical and experimental work, which is now turning opinion away from Allen's concept of the primarily pancreatic origin of diabetes and even from the idea that it is a single disease entity. Autopsy material from patients who have died from diabetes has failed to show characteristic changes in the islet cells in many instances. Diabetes seldom occurs either during the course of or as a sequel to acute pancreatitis. Assays of the insulin content of the pancreas from diabetics have on occasion yielded normal values. Downie concludes that the experience of the past 30 years has swung medical thought and opinion away from the view that diabetes arises as a result of a primary pancreatic deficiency. The one essential feature of diabetes mellitus is hyperglycemia, which may arise, at least in some instances, from increased utilization, destruction, or inhibition of insulin rather than from a primary decrease in its production. Much remains to be discovered, but at present diabetes mellitus is better regarded as a symptom complex resulting from any of several causes than as a disease sui generis.

1:173-208 (Feb. 3) 1951. **Partial Index**

Systemic Mycosis Due to Monilia Albicans. J. V. Duhig and M. Mead.—p. 179.
Effect of Minute Preliminary Doses of Methylcholanthrene upon Subsequent Carcinogenic Doses in Mice. C. P. O'Flynn.—p. 182.
Changing Place of Caesarean Section. J. W. Johnstone.—p. 188.

1:209-244 (Feb. 10) 1951. **Partial Index**

Intrauterine Foetal Abnormalities. D. G. Maitland.—p. 214.
Cutaneous Melanoma. D. Yeates.—p. 215.
Arteriosclerosis Obliterans Involving Upper Limbs: Case Report. P. Rundle.—p. 224.
Polyradiculoneuritis in a Child. D. C. Henchman.—p. 225.

1:245-280 (Feb. 17) 1951

"Destruction and Death: Can We Apply the Brake?" R. Southby.—p. 245.
Acute Anterior Poliomyelitis. S. G. Bradfield.—p. 250.
Treatment of Anterior Poliomyelitis. W. D. Sturrock.—p. 252.
Some Problems in General Practice. L. Hurley.—p. 254.
Cysts and Diverticula in Region of Caecum, with Report of Two Cases. K. V. Smith.—p. 259.

1:281-316 (Feb. 24) 1951

Some Medical Aspects of Atomic Warfare. S. R. Burston.—p. 281.
Recent Advances in Rheumatology, Physical Medicine and Rehabilitation. P. Alpers.—p. 286.
Preventive Orthopaedics and the Physiotherapist. J. Macnamara.—p. 293
Some Observations on Undergraduate Training in Obstetrics and Gynaecology. G. S. Adam.—p. 298.
Study of Significance of Rh Antibody Titration During Pregnancy. B. J. Arnold, R. J. Walsh and R. Herzger.—p. 301.

Medizinische Klinik, Munich

46:289-316 (March 9) 1951. **Partial Index**

Sympathetic Functions of Children with Tuberculous Meningitis During and After Treatment with Streptomycin, Thiosemicarbazone and Paraaminosalicylic Acid. W. Leuterer and G. Luft.—p. 289.
Ultrasonics in Differential Diagnosis and Its Action on Sympathetic Nervous System. H. Book.—p. 294.
*Experience with Aureomycin in Urinary Infections. A. Brettler.—p. 297.
Treatment of Streptomycin-Induced Eczema. H. A. Oerleke.—p. 302.
Legal Aspects of Medical Licensure. F. Neukamp.—p. 303.

Aureomycin in Urinary Infections.—Aureomycin has a wide therapeutic spectrum in that it is active against a large number of gram-positive as well as gram-negative organisms. Its importance in urologic therapy is due to the fact that it is active against gram-negative organisms of the coliaerogenes group. During prolonged treatment with aureomycin these organisms do not show a tendency to become resistant as is the case during treatment with penicillin and streptomycin. Aureomycin is almost nontoxic; daily oral doses of from 25 to 50 mg. and even up to 300 mg. per kilogram of body weight are tolerated. It has no harmful effects on liver function, hematopoiesis, metabolism, or nervous functions. Nausea, vomiting, and a sensation of pressure in the upper abdomen are occasionally observed. The histories are presented of several patients who had urinary infection and who were treated with aureomycin. Most of these patients could be discharged with sterile urine; their fever rapidly subsided, and duration of treatment and of hospitalization was shortened. Control examinations in two patients one month later revealed that the urine was still sterile.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

95:333-428 (Feb. 3) 1951

Benign Acute Pericarditis. A. C. M. Lips and A. Kooman.—p. 363.
Protoporphyrin Content of Red Blood Corpuscles in Diagnosis of Anemia. C. D. de Langen.—p. 368.
*Cause of Hemorrhages During Treatment with Aminopterin. S. van Creveld, M. M. P. Paulssen and S. K. Teng.—p. 374.
*Mercury Poisoning as Cause of Acrodynia. H. J. Peters.—p. 378.

Cause of Hemorrhages During Use of Aminopterin.—Since van Creveld and his associates were unable to explain the hemorrhages occurring in patients receiving 4-aminopteroylglutamic acid (aminopterin) for leukemia or other diseases on the basis of changes in the blood platelets or heparinlike substances, they investigated other factors that play a part in coagulation, particularly the Ac-globulin (accelerator globulin). Their studies in two patients indicated that a decrease in this clotting factor is probably responsible for the hemorrhages that frequently occur during treatment of leukemia with aminopterin.

Mercury Poisoning as Cause of Acrodynia.—In the 2 year old boy whose case is reported acrodynia developed as the result of treatment with mild mercurous chloride (calomel). Patch tests proved hypersensitivity to mercury, and the urine contained large amounts of mercury. The symptoms of acrodynia subsided following treatment with dimercaprol (BAL). The author cites several other reports from the literature in which children in whom acrodynia developed following treatment with mercury preparations were effectively treated with dimercaprol.

95:429-496 (Feb. 10) 1951. **Partial Index**

Testosterone Propionate for Palliative Treatment of Patients with Metastases of Carcinoma of Breast. A. Hofmans.—p. 437.
*Genital Tuberculosis in Women. L. I. Swaab.—p. 442.
*Pulmonary Changes in Brucellosis. N. G. M. Orie and E. H. van Embden Andres.—p. 447.
Megaloblastic Anemia in Presence of Intestinal Strictures and Anastomoses. M. C. Verloop and E. Florijn.—p. 454.

Genital Tuberculosis in Women.—Tuberculosis of the female genitalia usually develops by the hematogenic route from foci in other organs; the uterine tubes are nearly always involved, whereas the ovaries are involved in only about a third of the cases and the uterus (endometrium) in from one-half to three-fourths of the cases. Clinically, tuberculous salpingitis does not differ from other forms of adnexitis. Of the various methods used to establish the definite nature of the adnexitis, curettage is the one most widely used, although exploratory laparotomy, salpingography, and culdoscopy are also occasionally employed. Curettage is occasionally followed by exacerbation of the tuberculous process, and a case is cited to illustrate this. Inoculation of menstrual blood into guinea pigs is a harmless method, which can be valuable in establishing the tuberculous nature of salpingitis, as is demonstrated by a case report. Paraaminosalicylic acid seemed to be of no particular value in tuberculous salpingitis.

Pulmonary Changes in Brucellosis.—A man, 24, had pulmonary symptoms and roentgenologic signs of pulmonary involvement. He had had contact with cattle infected with brucellosis, and his pulmonary symptoms could be traced to no other cause than the brucellosis. This case induced the authors to investigate the occurrence of pulmonary changes in nine other cases of brucellois in their records. In six of these cases cough was an im-

logic examination. Patients with indolent ulcers were excluded. After the production of a moderate pneumothorax, roentgen examination was done so that it might be ascertained whether the layers of the pleura were free. With the patient under local anesthesia and with the aid of a trocar, the thoracoscope then was pushed into the pleural cavity, within the anterior to median axillary line through the fifth to the sixth intercostal space. The entire course of the sympathetic nerve and the branching off of both the splanchnic nerves could be seen in the posterior thoracic cavity. A simple device, consisting of a bicycle spoke whose end had been bent at an angle of 130 degrees and ground to a point, was inserted with the aid of a second trocar puncture. A slight incision was made easily in the pleura, and the splanchnic nerve was wound around the point of the spoke. The patient felt a characteristic pain in the gastric region on either the left or the right side, and microscopic examination of the removed nerve provided additional proof that the proper nerve had been removed. After the intervention the patients were followed up for five to 21 months. All the patients had immediate pain relief. Some had vomited seven to eight times a day before the intervention. No vomiting occurred after the intervention. Increases in weight up to 40 pounds (19 kg.) were observed within one year. All patients were placed on a normal diet and remained free of complaints. Ten days to six weeks after the intervention the ulcer niche could no longer be demonstrated on roentgenological examination. The regular presence of two to three myelinated fibers was revealed by systematic examination of the removed splanchnic nerve, and thus again physiological proof was provided of the presence of vagus fibers in the splanchnic nerve. An alternate functional play between the apparently antagonistic systems of vagus and sympathetic nerve is suggested. Overstimulation of the sensitive sympathetic nerve in connection with emotion causes secondary stimulation of the vagus. The splanchnicectomy eliminates pain, and thus the stimulating impulses from the center to the neuromotor-secretory system of the vagus are abolished.

Intravenous Administration of Paraaminosalicylic Acid.—Continuous intravenous drip of paraaminosalicylic acid solution has been used satisfactorily for the treatment of tuberculous meningitis. Intermittent intravenous administration of a solution of sodium paraaminosalicylic acid in distilled water was used in the treatment of 40 tuberculous patients, in 14 of them before and after excision of the lung or decortication, in nine during acute exudative tuberculosis of the pleura, in seven following recent hematogenous or bronchogenous dissemination and in 10 after pneumonolysis or plastic operations. Every day for 10 to 12 days 500 cc. of a 4% solution were administered slowly (30 drops per minute) within 3 to 5½ hours. The advantage of the intravenous over the oral administration of paraaminosalicylic acid consists in the high concentration of the drug in the blood and in its independence of the gastrointestinal tract. The drug was well tolerated. Nausea, vertigo or tendency to collapse were observed only if the solution was administered in less than three hours. The prothrombin time did not diminish, and the incidence of distant thrombosis was not increased. Intravenous administration of paraaminosalicylic acid has proved particularly valuable after extensive surgical procedures on the lungs, because the site of the operation is constantly washed by a pleural exudate containing large amounts of the drug. With a single daily intravenous infusion of the drug an effective concentration was obtained in the pleural exudate of patients with tuberculosis of the pleura, thus making repeated intrathoracic injections of irritating hypertonic solution unnecessary. Massive hematogenous dissemination was controlled with six intravenous infusions of 20 gm. of paraaminosalicylic acid combined with penicillin and sulfamethazine. Patients who hardly responded to the oral administration of the drug responded well to intermittent intravenous administration. This method proved particularly effective in those cases in which a most intensive bacteriostasis had to be obtained over a short period. Intermittent intravenous administration of paraaminosalicylic acid should be combined with streptomycin therapy whenever possible.

Semaine des Hôpitaux de Paris

27:753-786 (March 6) 1951. **Partial Index**

*Transmission of Malaria. J. Lebon and G. Senevet.—p. 753.
Treatment of Acute Malaria. J. Lebon and M. Fabregoule.—p. 755.

Transmission of Malaria.—Malaria may be transmitted not only by the bites of infected mosquitoes but also by blood transfusion, contaminated hypodermic syringes, and prenatally. The possibility of the passage of plasmodia from the mother to the fetus is to be considered as established by the demonstration of plasmodia in the blood of the umbilical cord or in the organs of a newborn infant. Further proof of this mode of transmission has been provided by the occurrence of attacks of malaria in newborn infants several days after birth in countries in which malaria is not endemic. Transmission of malaria by blood transfusion may be intentional, as in fever therapy. Involuntary inoculation by blood transfusions, on the contrary, is a regrettable complication, which may be prevented by blood tests performed on the donors before the transfusion, although it must be admitted that often parasites could not be demonstrated even in thick films obtained from donors with malaria. Plasmodium malariae was the pathogenic agent observed most frequently by occidental authors in cases of this type. It seems that the risk of transmission has not been reduced by the use of preserved blood because of the maintained vitality of the plasmodia. More than 200 cases of transmission of malaria by contaminated hypodermic syringes, 47 of them fatal, have been listed in world literature. The authors emphasize the great sensitivity to the malarial parasites, and particularly to P. falciparum, of the persons to whom the disease has been transmitted in this way. The mortality rate is to be considered 20 times higher than in other patients. Recent investigations on "normal" transmission of malaria by bites of infected mosquitoes revealed that P. vivax may be transmitted to man more easily than P. falciparum and the latter more easily than P. malariae. P. vivax within the mosquito does not suffer from low temperatures during the night, and that partly explains the exclusiveness of this parasite in spring and its distribution as far as to the 60th northern parallel. The sporogenic cycle of P. falciparum does not occur at a nocturnal temperature below 16 C., and, therefore, except for the tropics, it is limited to several weeks or months of summer in the temperate zone. P. malariae develops only in a small number of anopheles. The life cycle of P. vivax requires 15 to 18 days, that of P. falciparum 18 to 20 days, and that of P. malariae 31 days. The anopheles, although it may be a carrier of plasmodia, will transmit them to man only if the sporozoites are living and capable of development in man.

Ugeskrift for Laeger, Copenhagen

113:223-252 (Feb. 22) 1951. **Partial Index**

*Clinical Experiences with ACTH Treatment in Certain Skin Diseases. H. Brodthagen, F. Reymann and M. Schwartz.—p. 223.
Plastic Pyeloureteral Operation in Hydronephrosis. P. Fogh-Andersen.—p. 226.
Three Cases of Peroneal Muscular Paralysis (Charcot-Marie-Tooth Type) in Siblings. O. Østergaard Jensen.—p. 229.

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portant symptom. There was also another case in which roentgenologic evidence of pulmonary changes was mentioned. "Atypical pneumonia" is fairly frequent in brucellosis, and hemoptysis also is not uncommon in this disease.

Nordisk Medicin, Stockholm

45:117-152 (Jan. 24) 1951. Partial Index

Metabolism of Glutamine and Glutamic Acid: Relations in Nervous Tissue and in Psychiatric Affections. P. Astrup and I. Munkvad. —p. 117.
Duration of BCG Allergy. T. Gedde-Dahl.—p. 122.
Tuberculous Apical Fibrosis. T. W. Aas.—p. 125.
*Pneumoperitoneum. O. K. Thomassen.—p. 127.
Culture of Tubercle Bacilli: Comparison Between Culture from Laryngeal Swabbings and Gastric Lavage. A. Gilje.—p. 129.
Papillary Cystadenoma in Parotid Gland. H. V. A. Heikel.—p. 135.

Pneumoperitoneum.—From the preliminary results of pneumoperitoneum in 34 patients with pulmonary tuberculosis having cavities in the basal portions of the lungs, Thomassen believes that pneumoperitoneum is more valuable in such cases than pneumothorax and recommends that it be tried before more extensive surgical interventions, such as total thoracoplasty and lobectomy, are resorted to.

Paris Médical

41:157-176 (March 24) 1951. Partial Index

Diseases of Respiratory Apparatus in 1951. M. Bariéty and R. Lesobre. —p. 157.
*Objective Results of Treatment with Streptomycin in 1,000 Cases of Pulmonary Tuberculosis in Adults. C. C. Mattei.—p. 163.

Streptomycin in Pulmonary Tuberculosis.—This is a report on 1,000 adults with pulmonary tuberculosis treated with streptomycin during the last four years. Two grams of the drug daily were administered intramuscularly in six divided doses. A total dose of 250 to 400 gm. proved effective in patients with fibrocaseous or caseating lesions and a total dose of 600 to 800 gm. was effective in patients with miliary tuberculosis. Combined penicillin and streptomycin were given to patients with hectic fever and with large open and secondarily infected lesions. Treatment was discontinued 20 days after temperature was restored to normal but was reinstituted 10 days before the institution of pneumothorax or surgical intervention and continued for 10 days thereafter. Preoperative treatment with streptomycin required an average total dose of 60 to 100 gm., and maintenance treatment then required about 250 to 400 gm. Toxic reactions to the drug were not observed, except for a transient morbilliform eruption about the ninth day of treatment and the occasional occurrence of eczema (five cases per thousand). Deafness lasting six months and then disappearing completely occurred in only one patient. Three patients had temporary vertigo. Benign icterus occurred in 80 male patients after the administration of more than 200 gm. of the drug. This untoward reaction was not observed when dihydrostreptomycin was used. Streptomycin resistance of certain strains of Koch's bacillus was observed in vitro, but clinical resistance was negligible. Patients who already had received total doses of 150, 200, 400, and 800 gm. during a first course of treatment with streptomycin with excellent results were benefited to the same extent by a second course of the drug. Rapid defervescence and clearing of the pulmonary fields in patients with acute miliary tuberculosis was spectacular but often only temporary. Rapid clearing of the lungs in these patients was an unfavorable prognostic sign, since 40 of 130 died even though treatment was not discontinued prematurely. In patients with miliary tuberculosis who recovered, clearing of the lungs required at least three months. Highly satisfactory permanent results were obtained in 32 of 60 patients with generalized extensive bronchopneumonia. Streptomycin therapy made it possible to extend the indications for collapse therapy and to improve and accelerate its results. In patients with bilateral pulmonary tuberculosis, streptomycin therapy made possible effective collapse therapy on the less involved side. Combined treatment with penicillin and streptomycin reduced the size of the cavities by one third or more in 40% of 650 patients in whom collapse therapy was not feasible, by one half or more in 25% of these patients, and caused the cavities to disappear completely in 15% of these patients.

Practitioner, London

166:107-208 (Feb.) 1951. Partial Index

Induction of Labour. M. Fairlie.—p. 111.
Treatment of Threatened Abortion. J. Stallworthy.—p. 118.
Recognition and Treatment of Toxaemias of Pregnancy. K. Bowes. —p. 124.
The Elderly Primigravida. E. W. L. Thompson.—p. 133.
Care of the Diabetic Expectant Mother. J. H. Peel.—p. 143.
Obstetric Anaesthesia. E. A. Pask.—p. 149.
Air Transport of Pregnant Women. H. E. Whittingham.—p. 156.
Approach to Surgery and Anaesthesia in Old Age. T. N. Rudd.—p. 159.

Progrès Médical, Paris

79:105-136 (March 10) 1951. Partial Index

*Amicrobic Urethritis of Venereal Origin in Men: Its Treatment with Chloromycetin. J. Tissot.—p. 107.

Amicrobic Urethritis in Men.—While highly satisfactory, permanent results may be obtained with penicillin in gonococcic infections of the urethra in male patients, there has been in France an increased incidence of amicrobic urethritis in men that proved resistant to penicillin and sulfonamide compounds. This type of urethritis was described by Waelsch in 1901, and Harkness recently insisted that this infection is caused by a virus. Seventeen men with amicrobic urethritis, associated with prostatitis in three and with epididymitis in one, were treated with a French brand of chloramphenicol (tifomycine). A dose of 1.50 gm. was given daily by mouth in six divided doses, one tablet of 0.25 gm. every three to four hours. The drug was well tolerated. Treatment was continued for four to six days according to the localization of the condition and its duration before treatment was instituted. All the patients made a complete recovery, but local treatment may occasionally be necessary.

Revista Argentina de Reumatología, Buenos Aires

15:224-246 (Feb.) 1951. Partial Index

*Treatment of Rheumatic Fever with Rutin and Ascorbic Acid. M. Schnir.—p. 232.

Treatment of Rheumatic Fever.—Schnir administered rutin and ascorbic acid to 15 patients of either sex between the ages of 10 and 60 with rheumatic fever. Four patients were seen during the first month in the first attack of the disease. They had normal hearts. Eleven patients were seen during a recurrence of rheumatic fever. The number of recurrences in these patients varied between one and six. Ten of the patients had a cardiac lesion that was clinically and/or roentgenologically demonstrated. Rutin was given every four hours in five fractional doses varying from 60 to 250 mg. each. Ascorbic acid was given in two fractional doses of 250 or 500 mg. morning and night. The total dose of rutin varied between 5 and 60 gm. The total dose of ascorbic acid varied between 8 and 60 gm. Cure was obtained in all patients, as manifested by control of fever and of cutaneous, visceral, and articular symptoms, reduction of the erythrocyte sedimentation rate, and stabilization or disappearance of clinical, roentgenologic, and electrocardiographic evidence of cardiac disease. Within the first three months after discontinuation of treatment the patients had a recurrence that was controlled by repeated treatment up to a total dose of 500 mg. of rutin and 500 mg. of ascorbic acid. Rutin and ascorbic acid are not followed by toxic reactions or unpleasant late results. The substances potentiate the effect of each other, diminish the permeability of the tissues, and act favorably on the heart disease.

Schweizerische medizinische Wochenschrift, Basel

81:247-270 (March 17) 1951. Partial Index

Differential Diagnosis of Transient Infiltrations of Lungs with Increase of Eosinophilic Leukocytes in the Blood (Löffler's Syndrome). A. F. Essellier and B. J. Koszewski.—p. 247.
*Intrathoracic Endoscopic Exeresis of Splanchnic Nerve in Patients with Gastroduodenal Ulcer. H. Picard.—p. 250.
*Intravenous Administration of Paraaminosalicylic Acid (PAS). F. Amberg.—p. 255.

Exeresis of Splanchnic Nerve in Gastroduodenal Ulcer.—Extensive exeresis of the splanchnic nerve down to and below the diaphragm was performed on 29 patients in whom a simple gastric or duodenal ulcer had been demonstrated on roentgenologic examination. Patients with indolent ulcers were excluded. After the production of a moderate pneumothorax, roentgen examination was done so that it might be ascertained whether the layers of the pleura were free. With the patient under local anesthesia and with the aid of a trocar, the thoracoscope then was pushed into the pleural cavity, within the anterior to median axillary line through the fifth to the sixth intercostal space. The entire course of the sympathetic nerve and the branching off of both the splanchnic nerves could be seen in the posterior thoracic cavity. A simple device, consisting of a bicycle spoke whose end had been bent at an angle of 130 degrees and ground to a point, was inserted with the aid of a second trocar puncture. A slight incision was made easily in the pleura, and the splanchnic nerve was wound around the point of the spoke. The patient felt a characteristic pain in the gastric region on either the left or the right side, and microscopic examination of the removed nerve provided additional proof that the proper nerve had been removed. After the intervention the patients were followed up for five to 21 months. All the patients had immediate pain relief. Some had vomited seven to eight times a day before the intervention. No vomiting occurred after the intervention. Increases in weight up to 40 pounds (19 kg.) were observed within one year. All patients were placed on a normal diet and remained free of complaints. Ten days to six weeks after the intervention the ulcer niche could no longer be demonstrated on roentgenological examination. The regular presence of two to three myelinated fibers was revealed by systematic examination of the removed splanchnic nerve, and thus again physiological proof was provided of the presence of vagus fibers in the splanchnic nerve. An alternate functional play between the apparently antagonistic systems of vagus and sympathetic nerve is suggested. Overstimulation of the sensitive sympathetic nerve in connection with emotion causes secondary stimulation of the vagus. The splanchnicectomy eliminates pain, and thus the stimulating impulses from the center to the neuromotor-secretory system of the vagus are abolished.

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Ugeskrift for Laeger, Copenhagen

113:223-252 (Feb. 22) 1951. Partial Index

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BOOK REVIEWS

General Psychotherapy: Dynamics and Procedures. By D. Ewen Cameron, M.D., D.P.M., F.R.C.P., Professor of Psychiatry, McGill University, Montreal. Cloth. $5. Pp. 304. Grune & Stratton, 381 Fourth Ave., New York 16, 1950.

The author has had extensive experience in treating patients, as well as in teaching students in psychotherapeutic technics. The book is an outstanding example of organization and systematic presentation of a subject that is generally difficult to reduce to a workable classification. The author's viewpoint is not primarily that of the orthodox ego-psychiatrist, but is highly colored by a mechanistic behavioristic point of view with emphasis on conditioning as a most potent factor in determination of human reactions.

The author starts with five basic premises regarding human behavior. These are as follows: (1) that the organism seeks a point of equilibrium between itself and its environment (homeostasis); (2) that the person is incomplete and must therefore seek completion in relation with others; (3) that the organism responds as a whole to any stimulus no matter where applied; (4) that concepts of causality or event sequences must be broadened in order to understand human behavior, and (5) that the problems of behavior are relative to the social and cultural environment of the person.

In speaking of the dynamics of psychotherapy, the author reduces the whole structure of psychotherapy to three pivotal concepts that are based on the preceding premises, and that deal with normalization and adaptability of the nonunitary organism. There is a detailed discussion of the dynamics of psychotherapy and, finally, of the technics of psychotherapy, illustrated with excerpts from tape recordings, which are extensively used by the author. The sections on integrative and directive psychotherapy are well written, logical, and complete. There is an informative chapter on the use of adjuvants of psychotherapy, as well as excellent chapters on group and nursing psychotherapy.

The book is extremely well written and follows a literary style with a logical clear presentation of the material. The printing and format are of good quality. The book should be valuable not only to the general practitioner who is seeking a short introduction to psychotherapy, but also to the teacher of psychiatry who is seeking an organized logical presentation of the subject. There are, naturally, statements by the author that are of a controversial nature, but on the whole the book can be recommended as being one of the best, concise textbooks on psychotherapy.

Psychosurgery in the Treatment of Mental Disorders and Intractable Pain. By Walter Freeman, M.D., Ph.D., F.A.C.P., Professor of Neurology, George Washington University, Washington, D. C., and James W. Watts, M.D., F.A.C.S., F.I.C.S., Professor of Neurological Surgery, George Washington University, Washington, D. C. Second edition. Cloth. $10.50. Pp. 598, with 156 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

This edition of this monograph on psychosurgery is greatly enlarged over the first edition, which appeared in 1942. The authors' experience with the treatment of mental illnesses by surgery on the frontal lobes has been greatly extended. Only 80 patients had been operated on at the time of their first edition. They now have performed frontal lobotomy on 617 patients and transorbital lobotomy on 262 patients.

In the interval between the publication of the two editions of this monograph, various new techniques of psychosurgery have been devised, and operations on the frontal lobes have been used in the treatment of patients with intractable pain. The new techniques of removal of selected areas of the frontal cortex (topectomy), undercutting of the frontal cortex, thalamotomy, and open frontal lobotomy are discussed briefly. The authors have continued to use their original technique of frontal lobotomy. One of the authors, Dr. Freeman, has performed the majority of the transorbital operations. Dr. Watts expresses the opinion that any procedure involving cutting of brain tissue is a major surgical operation and should be performed only by those schooled in neurosurgical techniques, and that disability should constitute the indication for transorbital lobotomy, as well as for other types of psychosurgery.

The monograph is well written. Abstracts of case histories are scattered throughout the text. These, together with the numerous illustrations and tables, add greatly to its value. There are several hundred references to the important publications that have appeared on the subject since 1942. There is a brief but adequate index.

The authors have performed a monumental task in following the nearly 1,000 patients who have been subjected to operation. The operative procedures, management of the patient in the immediate postoperative period, and the treatment after discharge from the hospital are considered in detail. The final results, grouped according to diagnostic categories, are discussed fully and also presented in tabular form. Complications of the operations, fatalities, and unfavorable sequelae are discussed fully. Possible reasons for failure of the operations are considered, as well as the factors that are of importance in the determination of whether the operation is indicated and whether it is likely to be successful.

Psychosurgery is still a controversial subject. Ardent advocates and antagonists are still debating the subject. The final role of psychosurgery in the treatment of mental illnesses and in the relief of intractable pain has not been definitely settled. This edition of this monograph by the two physicians who have pioneered this work in this country and who have had the greatest experience in this field will always be a milestone and will serve as a guide to others who are seeking an ultimate solution to the problem.

Nitrous Oxide-Oxygen Anesthesia. By F. W. Clement, M.D. Third edition. Cloth. $6.50. Pp. 369, with 129 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

The author is widely known as an authority on the subject because of his work and teaching. Nitrous oxide anesthesia is thoroughly discussed from the standpoint of pharmacology, physiology, and practical administration. The signs of anesthesia, the techniques of administration, and the dangers incident to the administration of anesthesia are clearly presented.

This edition has been considerably enlarged, and there is a more detailed discussion of important factors in the administration of nitrous oxide anesthesia. A chapter is devoted to the use of curare, and there is a discussion of the use of other anesthetic agents as a supplement to nitrous oxide. Because of the widespread interest in and use of combinations of nitrous oxide, curare, and thiopental (pentothal®) sodium, considerably more space might have been allotted to a discussion of this form of combined anesthesia. The characteristics of nitrous oxide anesthesia, as presented in this volume, are so modified by the use of combinations of drugs that new descriptions are called for.

This volume is also valuable, because it presents information on many subjects, other than nitrous oxide, of interest to the anesthesiologist. It discusses the classification of patients as to operative risk, premedication, and the causes, signs, and treatment of circulatory and respiratory disturbances during operation. Endotracheal anesthesia and the technical features of anesthetic gas administration are described. The importance of oxygen and abnormalities in oxygen and carbon dioxide levels are discussed. Anesthesia for dental operations is very well presented.

This volume is excellent because of its clarity of description and its wealth of detail. Some portions are primarily of historical interest. The book should be read and studied by all persons who administer anesthetics.

• The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Adsorption and Chromatography. By Harold Gomes Cassidy, Associate Professor in Chemistry, Yale University, New Haven. Volume V, Technique of Organic Chemistry. Arnold Weissberger, editor. Cloth. $7. Pp. 360, with illustrations. Interscience Publishers, Inc., 250 5th Ave., New York 1; 2a Southampton Row, London, W.C.1, 1951.

The stated objective of the book is to describe and explain by discussion of principles the various means by which adsorption may be used in organic chemistry for the separation of mixtures. This purpose is admirably achieved in spite of the enormous quantity of work in this field that has been reported in the literature. Limiting his discussion to types of manipulations and the principles involved rather than giving detailed procedures for specific separations, the author has been able to indicate the wide applicability of adsorption to organic separations. He has emphasized liquid-vapor, liquid-liquid, and liquid-solid interfaces, since they are of prime interest to the organic chemist. References to the literature on other interfaces are nevertheless given. Adsorbents, their properties and sources are discussed fully. Little discussion is included on biochemical implications, surface active agents, wetting, detergency, or industrial applications, although references to the literature are given where possible.

The subject of adsorption in the separation of mixtures is of such great importance to the chemist and biochemist that even a mediocre treatise on the subject would generate considerable interest. A work as comprehensive and lucid as this one will unquestionably become an essential of any serious chemical library.

Diarreas por deficiencia de la nutrición: Sprue y otros síndromes digestivo-anemicos similares. Por el Dr. Fernando Milanés Alvarez, profesor de la Facultad de medicina de la Universidad de la Habana. Cloth. Pp. 329, with 39 illustrations. Editorial Libreria Selecta, O'Reilly 357, La Habana, 1950.

In this volume, the author following a methodical order discusses the clinical characteristics for identification of the diarrheic syndromes due to deficiency of nutrition; its differential diagnosis with diarrheas not due to deficiency of nutrition; the importance of general information as to the habits of nutrition and pathological antecedents; the clinical aspect with symptomatology, subjective and objective, and the complementary laboratory examinations; radiological and endoscopic studies, and biopsies. There is a chapter on the differential diagnosis of the different types of diarrheas due to deficient nutrition with its anatomical and histological pathology, physiopathology, and etiopathogenesis. Later there is a chapter dealing with evolution, complications, prognosis, treatment, prophylaxis, and rehabilitation.

The work presented is based on studies carried out in Cuba on Cuban patients who follow a type of nutrition that differs from that prevalent in this country because of economic and climatic conditions. Nevertheless, the principles are the same, and the conclusions should prove worth while to the practitioner and the specialist in the field.

The language used throughout the book is Spanish, but at the end of the volume there is an extensive bibliography in which mention is made of numerous articles published in English. There are many illustrations, some in color, and numerous charts and statistics which complement the discussions.

My Six Convicts: A Psychologist's Three Years in Fort Leavenworth. By Donald Powell Wilson. Cloth. $3.50. Pp. 369. Rinehart & Company, Inc., 232 Madison Ave., New York 16, 1951.

The author of this book is a professor of psychology. He was formerly at the University of Redlands and is now at Los Angeles State College. He was asked by the United States Public Health Service to undertake a research project in drug addiction and criminality at Fort Leavenworth Penitentiary and for three years devoted himself to the study which forms the basis of the present book.

The book is written in seminarrative form. It is not a record of the research project, but is a "reminiscent impression of the humors, whimsies and tragedies" of his six convict assistants. It relates his winning the good will of the hardened and often vicious criminals, the obstacles he met, and the accomplishments. Although the names of the characters are fictitious, all the events he describes actually occurred. Just a few of these are the murder of a fellow convict under the very eyes of the guards, an attempted prison break when the convicts saved the author's life, and the time when a Negro convict hypnotized his guard, hanged himself with the guard's belt, was declared dead by a physician, and came out of his three day trance on the autopsy table as the knife was poised over him.

In addition, the book tells something of how a psychologist carries out his testing and the reasoning behind it. It also supplies information about penal conditions in this country. It contains both pathos and humor. Every page is good reading.

The Low Fat, Low Cholesterol Diet: What to Eat and How to Prepare It. By E. Virginia Robbin, Senior Dietitian, E. V. Cowell Memorial Hospital, University of California, Berkeley, and others. Introduction by Thomas P. Lyon, M.D., Research Associate in Medical Physics, Donner Laboratory, University of California, Berkeley, and John W. Gofman, Ph.D., M.D., Associate Professor of Medical Physics, Donner Laboratory, University of California, Berkeley. Cloth. $3.45. Pp. 371, with illustrations. Doubleday & Company, Inc., Garden City, New York; 14 W. 49th St., New York 20, 1951.

The growing concern which has developed recently relative to the relation of cholesterol intake and metabolism to atherosclerosis has created an unusual need for a reliable source of information about dietary sources of cholesterol and the practical management of low cholesterol diets. This need has been admirably filled by the volume "The Low Fat, Low Cholesterol Diet" by Dobbin, Lyon, and Gofman.

This book is written for both the physician and the layman by a group of capable dietitians and one physician. It is filled with useful information concerning the fat and cholesterol content of various foods and with dozens of carefully prepared menus which are applicable to conditions of slight, moderate, or extreme dietary restriction of fat or cholesterol, or both. The exact manner of use of special purpose foods, the sources of such foods, and the actual recipes for their use in the diet are all included. Indeed, it is impossible to imagine any combination of dietary circumstances related to the main problem under consideration that is not covered in its practical aspects in this volume. No attempt has been made to produce a textbook on cholesterol metabolism or on the pathology or clinical aspects of arteriosclerosis. The appendix does contain, however, a brief but reliable section on nutrition in general, sufficient for a consideration of the adequacy of special diets.

There is no obvious criticism of the book itself, but in regard to the underlying philosophy on which it is based, it is justifiable to point out that the validity of low cholesterol, low fat diets as a practical means for control of the atherosclerotic process remains to be proved. On the basis of present evidence, the genetically determined manner of handling cholesterol by the metabolic machinery of the person probably is of far greater importance than the magnitude of the exogenous source of that steroid compound. If in the future some practical way is devised by which cholesterol-susceptible persons may be identified, then a practical volume of this sort will take on added meaning, for it is clear that certain persons will show a pronounced slowing of vascular cholesterol deposition when their intake of that substance is restricted. To many others it apparently makes little difference. It is impractical, even if scientifically sound, to attempt to change the dietary habits of a whole population, at least until the evidence is more persuasive.

These considerations, however, do not detract from this excellent volume itself, and it is to be recommended without any qualifications to dietitians, physicians, and laymen who need dependable help in solving the practical problems of the low cholesterol diet.

Allgemeine und anorganische Chemie: Ein einfaches Lehrbuch auf neuzeitlicher Grundlage. Von Gerold Schwarzenbach, Professor an der Universität Zürich. Fourth edition. Cloth. 21.60 marks; $5.15. Pp. 474, with 107 illustrations. Georg Thieme, Diemershaldenstrasse 47 (14a) Stuttgart O; agents for U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

This work seems to be simply and clearly written, well organized, and adequately illustrated. It gives almost equal space to an exposition of modern chemical theory and a description of the elements and their common compounds. The material covered is more extensive and the treatment is more thorough than one might expect in American elementary textbooks. Unlike some foreign books, it is indexed adequately.

Elements of Bacterial Cytology. By Georges Knaysi, Professor of Bacteriology, Cornell University, New York. Second edition. Cloth. $5. Pp. 375, with 169 illustrations. Comstock Publishing Company, Inc., 124 Roberts Place, Cornell Heights, Ithaca, New York, 1951.

This edition of Professor Knaysi's monograph, the first edition of which appeared in 1944, has been greatly expanded and revised to include new knowledge resulting from the current revival of activity in the cytology of microorganisms. The book can be recommended as indispensable background and reference reading for the serious and discriminating student of the subject, whether he be a mature investigator or graduate student.

Professor Knaysi's book is not clinically oriented. For the medical reader seeking orientation in microbiology, this treatise is recommended only with reservations arising from the following considerations. Biochemically the basic similarities of all living organisms, including bacteria, are well established. Recognition of fundamental biochemical processes common both to microorganisms and to the cells of higher organisms is proving exceedingly fruitful in that it permits analysis, through more experimentally controllable populations of microorganisms, of processes that can be verified as occurring in the metabolism of the cells of higher forms, including man. Appreciation of similar common elements in the structure and organization of the cells of bacteria and of higher forms is just now in process of emergence. The details are highly controversial. No general treatise, including Professor Knaysi's, could possibly keep abreast of this rapidly developing new insight. Areas of bacterial cytology in which the rapid chances in the subject have rendered obsolescent even the treatment in Professor Knaysi's recent monograph are as follows: the organization of the nucleus, nuclear division, sporulation, bacterial cytogenetics, the organization of the cytoplasm, the biology of spirochetes and bacterial flagella.

The very defects of the book are cogent evidence of the process of maturation which bacterial cytology is currently undergoing, and to which Professor Knaysi has contributed enormously through his personal investigations, his scholarly and critical reviews, and his teaching. "Elements of Bacterial Cytology" is illustrated well and profusely, and includes many original electron micrographs. The style is clear and readable and the bibliography valuable. The book is an essential contribution to its field. It should stimulate all concerned to seek clearer insight into this challenging subject.

Human Physiology. By Bernardo A. Houssay, M.D., Professor of Physiology, Buenos Aires, Argentina, and others. Translated by Juan T. Lewis, M.D., and Olive T. Lewis. Foreword by Herbert M. Evans, M.D. Cloth. $14. Pp. 1118, with 499 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1951.

This new textbook of physiology is edited by Houssay, well-known endocrinologist and Nobel laureate in physiology, and written by him and other South American physiologists. It gives a well-balanced presentation of the various parts of human physiology, without undue overemphasis of those areas of physiological research in which the writers are particularly interested. The book will be of great value to beginning medical students who find other standard textbooks too difficult. The book is amply illustrated, and each chapter is provided with a small number of additional references for further study. There is an extensive index. Printing and binding are excellent.

Methods of Vitamin Assay. Prepared and edited by Association of Vitamin Chemists, Inc. Second edition. Cloth. $5.50. Pp. 301, with illustrations. Interscience Publishers, Inc., 250 Fifth Ave., New York 1, 1951.

With the strides made in both vitamin technology and therapy and the advent of new vitamins, this edition of a widely accepted and used book is warmly welcomed. Assays for members of the vitamin B complex family, newly included in this edition, are those for pantothenic acid, pyridoxine, folic acid, biotin, vitamin B_{12}, and a chemical analysis for nicotinic acid (niacin). Both suggestions from interested persons and information from current literature have been utilized in the revision of the methods included in the first edition.

The chapter on vitamin B_{12} should be of special interest because of the world-wide attention which has been focused on this important newcomer to the field since the announcement of its discovery in 1948.

The book includes time-tried analytical procedures only. The methods included have been successfully applied to a variety of foods or other materials by several committee members.

The main merit of the book lies in the great job that has been done in the incorporation in one cover of those analytical methods that will be of most utility to the vitamin chemist and the inclusion of sufficient explanatory material with each method so that no difficulty should be experienced in application of the method, there being no necessity for recourse to the original source.

The Abnormal Pneumoencephalogram. By Leo M. Davidoff, M.D., Director of Neurological Surgery, Beth Israel Hospital, New York, and Bernard S. Epstein, M.D., Associate Radiologist, Jewish Hospital of Brooklyn, Brooklyn. Cloth. $15. Pp. 506, with 695 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1950.

This book is a fitting and valuable companion to "The Normal Encephalogram," by the same author. In the introduction, the technic, examination, and interpretation of plain roentgenograms of the skull are discussed. Following this is a chapter on pathology of brain tumors, which compresses some excellent photomicrographs and brief descriptions of the great majority of brain tumors into less than 20 pages.

The brain tumors are classified properly according to their anatomic location. Each group is covered in ideal fashion as follows: The introduction is a presentation of the clinical picture with the usual signs and symptoms. This is followed by a brief review of the literature; then the authors list their own material. The plain roentgenograms of the skull are discussed, and then the pneumoencephalographic studies, with the characteristic deformities taken up in detail. Positive and pertinent negative findings are summarized and the differential diagnosis discussed.

This excellent work on brain tumors accounts for at least 60% of the material in the text. There are two other sections. One, under the heading of Non-Neoplastic Tumors, covers subdural hematoma, brain abscess, syphilis of the brain, vascular anomalies of the brain, intracranial aneurysms, and cerebral hemorrhage and thrombosis. The second, titled Non-Tumorous Lesions of the Brain, includes lesions of the septum pellucidum; lesions of the aqueduct of Sylvius, spontaneous pneumocephalus; cerebral atrophy, agenesis of the corpus callosum, platybasia, Arnold Chiari malformation, meningoencephalocele and craniolacunia; congenital hydrocephalus; amaurotic family idiocy; optic chiasm and posterior fossa arachnoiditis; serous meningitis; encephalitis, encephalopathies and rare infections of the nervous system, and tuberous sclerosis. These subjects are discussed in the same manner as the brain tumors.

There is an excellent index of illustrative cases. The whole book is so arranged as to be most valuable to the neuroradiologist as a reference work, stressing as it does the anatomic approach to the problems of interpretation.

The Normal Encephalogram. By Leo M. Davidoff, M.D., Director of Neurological Surgery, Beth Israel Hospital, New York, and Cornelius G. Dyke, M.D. Third edition, revised by Leo M. Davidoff. Cloth. $6. Pp. 240, with 190 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

As stated in the preface this book is chiefly concerned with encephalographic anatomy. It remains the outstanding work in this field, brief and easily readable. The addition of planigraphy has aided considerably in clarifying the anatomy of midline structures. There is little change in the organization of the material. Additional excellent illustrations have been included, and the bibliography is more extensive.

Under "General Considerations" are grouped history, indications and contraindications for encephalography, technique of encephalography, roentgen technique, and reactions to encephalography. Following are separate chapters, entitled "The Ventricles, Interventricular Foramina and Aqueduct of Sylvius," "The Cerebral Convolutions and Sulci," "The Subarachnoid Cisterns and Their Contents," and "Intracranial Structures and Their Related Fluid Spaces." This last chapter is of particular value in correlating certain solid structures with the overlying and adjacent air shadows as seen on the roentgenogram.

QUERIES AND MINOR NOTES

SLEEPING PILLS CONTAINING AN EMETIC

To the Editor:—*It has been suggested that some drug be incorporated in sleeping pills which would make the patient vomit if he took an overdose. What is that preparation called? What is the emetic most suitable for this purpose, and in what dosage is it used so it will not cause any symptoms in normal dosage but will cause vomiting in doses of a lethal nature? It seems like an excellent way of preventing suicide by overdoses of sedatives.* *H. Curtis Wood, M.D., Philadelphia.*

Answer.—Combinations of barbituric acid derivatives and an emetic drug, designed to produce emesis when dangerous dosage levels of the barbiturate are reached, have been on the market for two years or more. Mixtures of this type, containing ipecac as the emetic drug, have been supplied under such trade names as sed-ems® (a capsule sold by Wm. A. Spencer, Inc., Chicago, and stated to contain 100 mg. of pentobarbital sodium and 30 mg. of powdered ipecac), em kaps® (pentobarbital sodium and powdered extract ipecac) and em tabs® (phenobarbital plus powdered extract ipecac). The latter two preparations have been supplied by the Dahl Pharmacal Company of Minneapolis.

The report of the animal experiments of Miskimon and Miskimon (A Method for the Prevention of Suicidal Deaths Caused by the Barbituric Acid Derivatives, *Virginia M. Monthly* **77**:119 [March] 1950) suggests that zinc sulfate might be preferable to ipecac in such preparations. Ipecac is not free of systemic toxicity. It produces vomiting by a combination of central and local action. If the emetic component of such a drug combination must be absorbed in order to be effective, ample time will elapse for simultaneous absorption of much of the barbiturate. Zinc sulfate is faster in producing emesis, and, should no emesis occur, it is not absorbed.

In December 1949 the Council on Pharmacy and Chemistry gave consideration to a barbiturate-ipecac combination and offered the following objections to such mixtures: 1. Emetics such as ipecac are not harmless drugs but potential poisons, even though the amount included with ordinary hypnotic doses of the barbiturate probably would not injure the majority of patients. 2. It is questionable whether the emetic would accomplish the object intended, as toxic doses of barbiturates that are rapidly absorbed would probably narcotize the emetic center. 3. If the emetic is effective, vomitus might be aspirated into the bronchi of a partially narcotized patient and kill rather than save the patient.

THE FENESTRATION OPERATION

To the Editor:—*Does the fenestration operation for otosclerosis have any effect on auditory nerve degeneration? Is nerve deafness apt to occur in otosclerosis whether or not one has a fenestration operation?* *M.D., Pennsylvania.*

Answer.—A recent study suggests that a successful fenestration operation with a maintained hearing improvement may afford a partial protection against progressive auditory nerve degeneration. This finding, based on a study recently published by Adin and Shambaugh in the *Archives of Otolaryngology,* March, 1951, of 390 ears observed for five to 10 years, needs confirmation by other observers before it can be accepted conclusively. Theoretically, one would not expect the fenestration operation to have any effect on the underlying sclerotic lesion, including the auditory nerve degeneration which so often occurs in otosclerosis.

HAPTENS AND BLOCKING ANTIBODIES

To the Editor:—*Please discuss attempts to produce haptens to neutralize antibodies in the Rh-negative pregnant woman and explain blocking antibodies. Please give references to the literature.* *A. Pirrone, M.D., Cleveland.*

Answer.—The idea of preparing Rh hapten to neutralize Rh antibodies in sensitized Rh-negative women was first proposed in 1944 (Wiener, Sonn and Belkin: *J. Exper. Med.* **79**:235 [March] 1944). Belkin and Wiener (Demonstration of the Properties A, B, M, N, and Rh in Red Cell Stromata, *Proc. Soc. Exper. Biol. & Med.* **56**:214 [June] 1944) showed that the Rh factors, as well as the M-N and A-B factors, are located in the red cell stromas, but were unable to extract the Rh substance from the stromas. These observations have been confirmed (Calvin, Evans, Behrendt and Calvin: *Proc. Soc. Exper. Biol. & Med.* **61**:416 [April] 1946). Carter (*J. Immunol.* **61**:79 [Jan.] 1949) claimed to have isolated the Rh hapten in alcoholic extracts of red cells and asserted that injection of her preparation reduced the Rh antibody titer in vivo. Wiener (*J. A. M. A.* **141**:1330 [Dec. 31] 1949) and Unger (*Am. J. Obst. and Gynec.* **58**:1186 [Dec.] 1949) showed, however, that Carter's preparation was inert serologically both in vitro and in vivo. Recently Moskowitz, Dandliker, Calvin and Evans (*J. Immunol.* **65**:383 [Oct.] 1950) also reported their inability to confirm Carter's work. By a complicated physical procedure involving multiple separations from aqueous suspensions by high speed centrifugation, they obtained a water-soluble fraction which they designated as elinin, which contained the Rh and A and B factors from red cell stromas. The Rh activity of the elinin was destroyed after five minutes at 56 C., but the A activity was not diminished after 30 minutes at 56 C. Moreover, the Rh activity was rapidly lost even in sterile solutions in the refrigerator after as short a period as two weeks. Thus, this new technic is not suitable for the preparation of Rh hapten for clinical use. In summary, the claims of Carter are based on faulty observations and there is no immediate prospect of a practicable method of preparing Rh hapten; nor is there any assurance, should a method be devised for preparing Rh hapten, that such preparations would be effective in clinical work.

The term blocking antibody is applied to Rh antibodies that are incapable of clumping Rh-positive red cells in saline mediums. The earlier work on Rh typing was done with Rh-agglutinating serums active in saline mediums. When cases with clinical evidence of Rh sensitization were encountered in which Rh antibodies could not be demonstrated in the patient's serum by the usual agglutination technic, Wiener postulated the existence of a second type of Rh antibody capable of combining with Rh-positive cells in saline mediums but without clumping them. He devised a test (blocking test) for demonstrating these antibodies, and showed that, when Rh-positive cells are treated with serum containing strong Rh-blocking antibodies, they become coated by Rh antibody and can no longer be clumped by Rh-agglutinating serum. Later, the Rh-blocking antibodies were encountered independently by Race and Diamond, who pooled anti-Rh$_0$ and anti-rh' serums in an attempt to produce polyvalent anti-Rh'$_0$ serum. When the pooled serum still acted as anti-rh', they traced this to the presence of anti-Rh$_0$-blocking antibodies, which Race called "incomplete" Rh antibody. Subsequently, more sensitive and direct methods for demonstrating Rh$_0$-blocking antibodies were developed, namely, the conglutination test of Wiener, the antiglobulin test of Coombs and co-workers and the tests with trypsinated red cells of Morton and Pickles. However, all these tests appear to detect the same antibody, which, because of its in vitro and in vivo behavior, is designated univalent Rh antibody to distinguish it from the Rh agglutinins, which are designated bivalent antibodies. This concept, of Rh-blocking antibodies as univalent antibodies, explains their blocking action, and it would be expected that univalent antibodies are of smaller molecular size than bivalent or agglutinating antibodies. In fact, Wiener has shown (*Ann.*

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Allergy 6:293 [May-June] 1948) that univalent-blocking antibodies readily pass through the intact placenta while bivalent antibodies (agglutinins) are held back by the normal placental barrier. Thus, it is the blocking or univalent antibody that causes erythroblastosis rather than the agglutinating antibody as originally postulated by Levine. Nowadays, in antenatal Rh antibody tests, therefore, emphasis is placed on tests to detect univalent Rh antibodies rather than Rh agglutinins. Diagrams to explain the action of blocking antibodies in the blocking test, conglutination test, antiglobulin test and test with trypsinated cells have been prepared by Wiener (Rh Glossary, *Lab. Digest* **6**:1 [Nov.] 1950).

LOCALIZED FAT ACCUMULATIONS

To the Editor:—*A 19 year old girl has abnormal distribution of fat from the waist line to 4 inches above the knees. It has spared the buttocks but is very thick in the lateral aspects of the hips and thighs. Her breasts are normal, her basal metabolic rate is + 4 and urine and blood findings are normal. She has extremely irregular menses with severe cramps before and during the menstrual period. Her liver is palpable 1 cm. below the costal margin. She has had infectious hepatitis. She has been on a strict diet for two years (2,000 calories), although the strictness of the diet might be on paper only. In two years she has gained 24 pounds. She has coarse hair on the body and is developing a mustache. Please tell me what to look for. Is there any treatment? Would you consider a pituitary tumor?* *James A. Craig, M.D., Naples, Fla.*

Answer.—While this patient has a number of the signs and symptoms of an endocrine disorder, such as localized fat accumulation between the hips and knees, irregular menstrual cycles and hirsutism, it is suggested that for the present this be treated as a case of exogenous obesity in view of the impracticability of a detailed endocrine analysis in your locality. It is suggested that she be placed on a 1,000 calory diet, with the use of appetite-curbing drugs, such as the amphetamines, if necessary. The dosage of such drugs would be preferably 5 mg. of racemic amphetamine sulfate or phosphate three times a day, one hour before meals. If necessary the dosage may be increased at those times during the day when the patient has difficulty with food restriction. A small dose of a barbiturate may be required with the evening dose temporarily. It is probable that with weight loss the menstrual cycle will become normal. Even with the irregular menses it would seem that the patient is ovulating, since functional dysmenorrhea is usually associated with ovulation. In considering a pituitary tumor, one might find this type of fat distribution if there were involvement of the hypothalamus, but this is more often than not associated with amenorrhea. It is advised, however, that a roentgenogram of the skull be obtained to rule out the possibility of this lesion.

HEART DISEASE AND RADIOACTIVE IODINE

To the Editor:—*An Arizona newspaper, on about March 1, 1951, published an article referring to work done by Drs. Herrman L. Blumgart and A. Stone Freedberg, of Harvard Medical School, in which they used radioactive iodine in the treatment of angina pectoris. Has anything been published in medical literature on this subject?*

George A. Barnett, M.D., Riverside, Ill.

Answer.—A comprehensive report of the treatment of patients with chronic heart disease who have normal thyroid functions by Blumgart and associates has appeared in *Circulation* (1:1105, 1950). Other articles by these authors are as follows: Treatment of Euthyroid Cardiac Patients by Producing Myxedema with Radioactive Iodine (*Proc. Soc. Exper. Biol. & Med.* **67**:190, 1948) and The Treatment of Euthyroid Cardiac Patients with Intractable Angina Pectoris and Congestive Failure with Radioactive Iodine (*J. Clin. Endocrin.* **10**:1270, 1950).

The application of this method of treatment has been reserved for those who have remained incapacitated because of severe attacks of angina pectoris despite the use of all accepted medical measures. This method of treatment is being employed in several centers where radioactive iodine is available and is said to be helpful in selected cases. A report from the University of Pennsylvania has appeared in the *Pennsylvania State Medical Journal*, April 1951.

IMMUNIZATION AGAINST TETANUS

To the Editor:—*A boy now aged 11 was given an injection of tetanus toxoid by another physician in 1946, following which it is said he was unconscious for 24 hours. He also has a history of fever and local swelling from an injection of diphtheria toxoid given at the age of 4. There is asthma and hay fever on both sides of his family; he too has asthma. Recently he came in for immunization against tetanus. Tetanus toxoid, fluid, was tried in the following ways: 1. An injection of 0.02 cc. was given intradermally and resulted in the development locally of a wheal about 10 by 15 mm. surrounded by an area of erythema about 4 cm. in diameter. 2. A few days later he was given the same amount subcutaneously. Two days after this he was found to have an area of redness and swelling about 5 by 10 cm. surrounding the site of the injection. The usual single dose of this material is 0.5 cc. This child is said to be sensitive to penicillin. What efforts, if any, should be made to immunize this boy against tetanus? It was learned that at one time he had been given tetanus antitoxin for an injury with no ill effects.* *M.D., Florida.*

Answer.—This patient's blood serum should be titrated so that the existing level of immunity against both tetanus and diphtheria may be determined. If the injection given in 1946 was alum-precipitated tetanus toxoid, it is probable that this acted as a sensitizing dose, so that later injections could function in the manner of booster doses. The intracutaneous injection of amounts of tetanus toxoid as low as 1/250th cc. can elicit a satisfactory immunologic response in adequately prepared subjects. Moreover, an interval of five to 10 years does not militate against satisfactory response to recall injections of such small magnitude. Presuming that the usual initial dose, followed by repeated small intracutaneous injections, in this subject has not resulted in an adequate level of immunity, it is recommended that repeated minute volumes of tetanus toxoid (0.01 cc. or less) at intervals of one or more weeks, the number to be determined by blood titrations, be utilized. The Children's Bureau, Washington, D. C., has a list of laboratories engaged in studies on active immunization against tetanus. The mailing of specimens of blood serum to any one of these laboratories would assist in expediting immunization of your patient.

VAGINAL ORGASM

To the Editor:—*Please explain what is meant by the term "vaginal orgasm."* *G. Lombard Kelly, M.D., Augusta, Ga.*

Answer.—A distinction has been made between clitoral orgasm and vaginal orgasm, but this distinction is controversial because some authorities deny that a "vaginal orgasm" exists. J. P. Greenhill (Office Gynecology, ed. 5, Chicago, Year Book Publishers, 1948, p. 123) says, "I should like to emphasize a point about which almost nothing has appeared in gynecologic literature. This is that in women there are actually two sexual organs. The first is the clitoris, which plays the dominant role in childhood and in masturbation during adulthood. The second organ is the vagina, which psychologically is unimportant until puberty. Whereas in the child the clitoris can and does give sexual satisfaction, in the normal adult woman it is the vagina which is the principal sexual organ. In frigid women, however, the transfer of sexual excitement and satisfaction from the clitoris to the vagina does not take place.

"E. Bergler (Psychiat. Quart. 18:374 [July] 1944) maintains that a typically frigid woman suffers not from a deficiency of the libido but from a neurosis, that is, an illness of the unconscious. For this reason, hormone therapy is unsuccessful in typical cases. Bergler believes that the involuntary contraction of pelvic and perineal muscles at the end of the sex act is the one and only sure criterion that a man can use to determine whether a woman is frigid. Although the absence of glandular lubricating secretion during coitus is a sure sign of frigidity, the converse is not necessarily true; presence of the secretion does not exclude the possibility that frigidity in a mild form may exist."

Helene Deutsch in "The Psychology of Women" (Grune & Stratton, 1944, p. 233) says, "The awakening of the vagina to full sexual functioning is entirely dependent upon the man's activity; and this absence of spontaneous vaginal activity constitutes the physiologic background of feminine passivity. The competition of the clitoris, which intercepts the excitations unable to reach the vagina, and the genital trauma then create the dispositional basis of a permanent sexual inhibition, i. e., frigidity."

Sandor Rado, in his chapter on "An Adaptational View of Sexual Behavior" in "Psychosexual Development in Health and Disease" (edited by Paul H. Hoch and Joseph Zubin, Grune & Stratton, 1949), says (p. 162), "Physiologically, coition may be described as a patterned sequence of mutual stimulatory activities designed to elicit the reflex of orgastic peristalsis in both male and female. Orgastic peristalsis of the penile urethra effects the ejection of the semen; orgastic peristalsis of the vaginal walls facilitates this function by 'milking' the penis. The spread of excitation to adjacent structures and beyond may involve muscles of the entire body in orgastic convulsions, thereby producing a generalized "push and pull" toward the union of sperm and egg. Orgastic peristalsis is the insemination phase of reproduction."

Gustav Bychowski, in his chapter on "Some Aspects of Psychosexuality in Psychoanalytic Experience," says (page 200), "As a manifestation of feminine sexuality the difference between the vaginal and the clitoral orgasm is of paramount importance. In cases where only the latter is possible there is always a deep denial of the feminine role and a morbid masculine identification."

HELIUM AND ALUMINUM WELDING

To the Editor:—*In aluminum welding operations helium is blown onto the metal around the electric arc to facilitate the welding quality. Certain workers have complained of a "big head," and others of "pains in the chest." Would the inhalation of helium cause these "symptoms?"* *M.D., Illinois.*

Answer.—Both helium and argon arcs, improperly used, may produce physiological damage not produced by ordinary atmospheric electroarcs but not necessarily more injurious. Oxygen being essentially absent, neither nitrogen oxides nor metallic oxides are produced. In the absence of an atmospheric shield that absorbs ultraviolet rays near to the arcing area, more ultraviolet rays reach the general atmosphere. Since oxygen is absent from the arc point, ozone is not there created but is created in those zones adjacent to the welding area in which the oxygen of the atmosphere is present. Ozone in a concentration of 1 ppm has been detected around heli-arc welding, and this level may be physiologically significant. There is reason to believe that ozone formed along with nitrogen oxides behaves more actively as an irritant than when ozone is formed alone, but synergistic actions may be involved. The unadmixed ozone, a less immediate irritant, is said to cause less obvious symptoms, such as chest oppression. No proper use of the noble gas arcs will lead to oxygen deficiency. Seventy-five per cent mixtures are deliberately introduced into artificial atmospheres designed for breathing. However, no arc welding should be conducted in closely confined spaces without adequate protection of the worker. The resulting oxygen deficiency would characterize any form of welding, including helium. Helium is an inert gas, becoming important in respiration only when the quantity present displaces oxygen below that level requisite to normal respiration.

HAY FEVER AND CORONARY DISEASE

To the Editor:—*A 46 year old patient had a coronary occlusion and myocardial infarction four months ago. I would like to give him pyribenzamine® in the spring, which had given him good relief for hay fever in previous seasons, if not contraindicated. Would other histaminics be preferable?*

Elizabeth G. Brings, M.D., Cumberland, Md.

Answer.—There is apparently no evidence of a deleterious effect on the coronary circulation from antihistaminic drugs. Tripelennamine (pyribenzamine®) hydrochloride is probably as satisfactory as any, and if it has been used in the past without untoward symptoms there is no reason why it may not be repeated this year, despite the myocardial infarct of four months ago.

RHEUMATIC FEVER AND INFLUENZA

To the Editor:—*A 41 year old woman with rheumatic heart disease, who developed rheumatic pleuromediastinitis with bilateral, pleural effusion, auricular fibrillation, low grade fever, and chest pain which required either narcotics or meperidine hydrochloride several times a day for relief, showed no amelioration of signs or symptoms for two months. She then had an attack of influenza, epidemic in this area this winter. During the first day of this superimposed illness, the chest pains ceased, and in less than a week most of the pleural effusion had been absorbed. The influenza went through the usual stages observed in this epidemic—fever, sore throat, nasal catarrh, bronchitis and cough with greenish yellow sputum. Have other physicians observed instances in which the course of active rheumatic fever has been influenced by an attack of influenza?* *Max Dobrin, M.D., Miami Beach, Fla.*

Answer.—Cases are on record in which there is a temporary amelioration of active arthritis, rheumatic or otherwise, during active infections of other sorts or indeed during infarction, but there are no adequate statistics about this phenomenon as yet. Whether the spontaneous (increased endogenous) production of cortisone by the body in response to the acute complicating disturbance may be responsible for this is not known.

HISTAMINE AND HEADACHES

To the Editor:—*I would appreciate information concerning histamine desensitization for headaches: (1) type of product to be used, (2) dosage schedule and (3) duration treatment may be given and (4) contraindications for using histamine.*

M.D., South Dakota.

Answer.—Experimental and clinical observations indicate clearly that, by repeated injections of histamine, only a slight, if any, increased tolerance to histamine is produced. There is certainly no evidence for the claim of histamine desensitization. Histamine treatment may possibly be effective in some instances of headache, but the basis of such results is not understood. There are many techniques for the use of histamine and different routes of administration. One of the commonest procedures is as follows: Histamine diphosphate or hydrochloride or other histamine salt is used. The initial dose is 0.1 cc. of a 1:100,000 dilution. Injections are given frequently, at first daily or twice daily. Increments of about 25 to 50 per cent are made until the patient shows evidence of a reaction (headache, flushing of the face). After two or three weeks of frequent injections the intervals are lengthened to every other day and finally to once a week. The usual duration of treatment is two to three months. The contraindications for histamine injections are cardiovascular disease, peptic ulcer and some types of allergy.

EKG PATTERN IN CORONARY INSUFFICIENCY

To the Editor:—*Do electrocardiographic leads taken at the left sternoclavicular junction or the left supraclavicular space demonstrate coronary insufficiency? If so, what is the pattern?*

F. C. Ganyard, M.D., Wooster, Ohio.

Answer.—A V lead from the sternoclavicular junction or the supraclavicular groove is, theoretically, expected to reflect potentials derived mainly from the cavities of both auricles and ventricles. However, depending on the anatomic and/or "electrical" position of the heart, the type of thorax, and other factors, the resultant electrocardiographic pattern may represent a mixture of endocardial and epicardial potentials, the latter derived from various surface areas of the heart. Thus, a QS, Qr, qSr, or other combinations may be obtained, usually paired with an inverted T wave.

Acute or chronic coronary insufficiency will produce S-T-T variations depending on (*a*) the part of the heart which is mainly reflected in the lead under question and (*b*) the localization of the anatomic or functional lesion within the myocardium. The resultant pattern of coronary insufficiency may, therefore, consist of S-T elevation or S-T depression, and of upright T waves as well as of inverted T waves. Neither or both atypical leads may provide more or better evidence of coronary insufficiency than a routine electrocardiogram including standard leads, aV limb leads and precordial leads in the six standard positions.

NUMBNESS AND TINGLING OF FINGERS

To THE EDITOR:—*Please send information on "numbness and tingling of fingers of the upper extremity in middle age persons on arising in the morning."*

Herbert A. Mulholland, M.D., New York.

ANSWER.—Numbness and tingling of fingers is a frequent complaint and may arise from a variety of causes. The fact that t occurs on arising would indicate that its cause is not circulatory, although the correspondent does not state whether the symptom lasts throughout the day or subsides with motion. Arthritis and periarthritis of the small joints must be looked for. Neuritis due to vitamin deficiency, excessive alcoholic intake, or other toxic poison, such as lead or arsenic, must be considered. Pressure on the nerve trunks due to cervical rib, anterior scalenus muscle, cervical disk, or osteoarthritis of the spine is by far the most frequent cause of such complaints. Neurologic disorders of the cord and of the central nervous system must be excluded. If the fingers are not only numb but cold and cyanotic and the palpable arteries pulsate, arteriolar sclerosis may be present. Nervous fatigue and emotional tension often cause numbness and tingling in different parts of the body.

DAMAGE FROM TOXIC INDUSTRIAL SUBSTANCES

To THE EDITOR:—*According to J. A. Zapp Jr. (Human Biol.* **19***:27, 1947), an early variation in the health of an industrial worker may be detected by frequent blood pressure readings. It is stated a diastolic rise and blood pressure index change are expected with the worker experiencing a toxic accumulation. Has this work been confirmed and would this be a method of value in the detection of early absorption of mercury or dimethylformamide?*

Barnwell R. Baker, M.D., Waynesboro, Va.

ANSWER.—Foulger and his associates have long maintained that demonstrable vascular deviations constitute the earliest indication of damage from toxic substances found in industry and that such changes are nearly universal. The patterns encountered are not constant and vary with the extent or degree of exposure. The deviations are not profound, and the examinations require exactness. One requisite appears to be that the group of workmen tested are so accustomed to cardiovascular examinations that emotional responses would be no more likely to arise than from the commonplace lacing of shoes. Manifestly this will not usually be true for occasional examinations. For extended studies the method invites wide utilization. For the emergency examination of groups of workmen, practical difficulties may arise. Opportunity for application after exposure to the two substances mentioned is dependent on the universality of the response said to occur. It may be too early to accept universality in any phenomena of this character. Repeatedly, Foulger has observed that fatigue, malaise, malnutrition, exertion, alcohol, and some medicaments induce the same cardiovascular manifestations as industrial chemicals.

REACTIONS TO PENICILLIN

To THE EDITOR:—*A patient, whom I have been treating with 100,000 units of penicillin three times daily by the aerosol method and 300,000 units of procaine penicillin parenterally daily for chronic bronchiolitis and bronchiectasis, developed a magenta tongue which "burned" and mild cheilosis after about nine days of therapy. The patient was also receiving small doses of codeine sulfate to control an exasperating cough. Did the penicillin therapy, which, I may add, was accompanied by multivitamin capsules three times daily, cause a riboflavin deficiency?*

J. B. Wager, M.D., Bronx.

ANSWER.—In about 6 per cent of patients receiving penicillin aerosol therapy there will develop one or more of the following reactions: burning of tongue and mucous membranes, black tongue, inflammation of tongue and mucous membranes, cheilosis and in some rare instances, generalized urticaria. The majority of these reactions are believed to be due to local (contact) penicillin sensitivity. The manifestation of a black tongue is thought to be due to predominance of other organisms which appear after the penicillin-sensitive organisms are diminished as a result of aerosol therapy. This type of black tongue is not due to a riboflavin deficiency.

BERYLLIUM POISONING

To THE EDITOR:—*A metallurgical firm is about to begin a process in which wire brush abrasion of an alloy of 2 per cent beryllium and 98 per cent copper is employed. The dust is heavy and immediately settles to the floor, where it is oiled and promptly removed. What hazards are likely to arise? Should the workers be required to wear masks?*

Leonard W. Hill, M.D., Attleboro, Mass.

ANSWER.—Beryllosis is at present a threat because of lack of precise information as to circumstances leading to poisoning. In a few instances fatal involvement has followed minute trace exposure. But some entire groups have undergone exposure at high levels without apparent deleterious effects. Individual susceptibility is pronounced. Cases have arisen from the founding of alloys of the character mentioned, and it is believed that at least one case ensued after the mere cutting of alloy rods. It may not be assumed that no fine dust will be produced in a wire brush operation or that the fine dust will not oxidize. Both lung and cutaneous lesions are potentialities. Well functioning and well maintained exhaust units may be requisite. In addition, the wearing of suitable respirators may be necessary. The final test is the absence of beryllium in the atmosphere as breathed. Toward the best planning, it is suggested that the chief of the Laboratory Division of Occupational Hygiene of Massachusetts Department of Labor and Industries be consulted as to plans or installations.

ALLERGIC DISEASES IN ISRAEL

To THE EDITOR:—*In Queries and Minor Notes in* THE JOURNAL *of March 10, 1951 (page 773) Dr. Aubie Portigal asks for literature on the incidence of allergic diseases in Israel, especially bronchial asthma. Your answer that "no figures have been published on incidence" takes no notice of my article "Allergic Diseases in Palestine," published in* Harofe Haivri *(2:70, 1946). On the basis of statistical figures of the General Sick Fund (covering then one third of the Jewish population in Palestine) it has been found that during the years 1936-1944 0.98% of all new patients suffered from bronchial asthma. This percentage proves that bronchial asthma is as common in Israel as in other countries, including the United States. Doctors who have practiced previously in Europe maintain that the incidence of asthma in Israel is even higher than in other countries. This might be due to the fact that the greatest part of the population are immigrants, thrown into new climatic conditions and exposed to new plants and foods. A special problem in this country is the high incidence of bronchitis spastica among children up to the age of 3 to 4 years.*

Contrary to your opinion, I consider the climate here generally unfavorable for asthma, especially in coastal regions. Practically, this question has to be decided for every patient individually.

N. Lass, M.D.,
Hadassa Municipal Hospital, Tel-Aviv.

FOUR OPERATIONS FOR GALLSTONES

To THE EDITOR:—*In Queries and Minor Notes in* THE JOURNAL, *May 19, page 297, is a question about the prevention of gallstones in a patient who had been operated on four times for stones in the common duct. The answer failed to mention that excessive hemolysis is of prime importance in the formation of gallstones. Either congenital or acquired hemolytic anemia should be suspected in such a case, especially if the patient was a male or if the first attack of biliary colic occurred in a young person. In such cases, one should search carefully for splenic enlargement, by physical examination and, in case of doubt, by roentgen visualization. In addition, the various laboratory studies that indicate increased hemolysis or increased fragility of the erythrocytes should be employed. It should be remembered that hyperhemolysis may occur in paroxysms, so that at times the patient may show neither jaundice nor anemia, though these may appear at subsequent examinations. In cases of hemolytic anemia, splenectomy may be the best prevention of further gallstone formation.*

Ravenna, M.D., 104 S. Michigan Ave., Chicago 3.